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EIGHTH SPECIAL REPORT

OF THE

COMMISSIONER OF LABOR.

THE

HOUSING OF THE WORKING PEOPLE.

PREPARED UNDER THE DIRECTION OF

CARROLL D. WRIGHT,

COMMISSIONER OF LABOR,

BY

E. R. L. GOULD, Ph. D.

WASHINGTON:

GOVERNMENT PRINTING OFFICE.

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MESSAGE OF THE PRESIDENT.

To the Senate and House of Representatives:

I transmit herewith the Eighth Special Report of the Commissioner of Labor, which relates to the housing of the working people in different countries.

GROVER CLEVELAND.

EXECUTIVE MANSION,
Washington, D. C., February 14, 1895.

LETTER OF TRANSMITTAL.

DEPARTMENT OF LABOR,
Washington, D. C., February 14, 1895.

SIR: I have the honor to transmit herewith the Eighth Special Report emanating from this Department. This report deals with the housing of the working people in different countries, and is the result of an original investigation carried on under my direction by Dr. E. R. L. Gould, formerly one of the statistical experts of this Department. The compilation of the data and the analysis thereof have been furnished by him.

A careful examination of the report leads me to express the opinion that it is an exceedingly valuable one, and one which, under the present condition of affairs, will stimulate undertakings in the direction of improving the dwellings of the people. All such efforts partake of ethical and economic considerations, and when it is shown that the economic side is fully warranted by the experiments which have been conducted in different parts of the world, it is believed that the ethical results will induce others to make efforts to secure the very best quality of housing. As the labor question concretely is simply a struggle for better conditions, every undertaking to secure such conditions should meet with encouragement, and as the organic law of this Department calls upon it to acquire and diffuse among the people of the United States useful information concerning the means of promoting their material, social, intellectual, and moral prosperity, it is deemed particularly appropriate to publish the facts contained in this special report on so important a matter as the housing of the working people.

I join most cordially in Dr. Gould's desire to express his sense of obligation to those persons in Europe and in this country who have courteously aided the Department in securing information, and who have given it the benefit of administrative and business experience

in dealing with the housing problem. These individuals are so numerous that personal mention is impossible, but it is hoped they will fully understand that acknowledgment is none the less sincere. Particular mention, however, should be made of the efficient assistance rendered Dr. Gould by Mr. G. A. Weber, one of the special agents of the Department, and of the services of Mr. Charles H. Verrill, and of Mr. Oren W. Weaver, the chief clerk of the Department.

I am, very respectfully, your obedient servant,

CARROLL D. WRIGHT,
Commissioner.

The PRESIDENT.

CHAPTER I.

SCOPE AND CHARACTER OF THE PRESENT INQUIRY.

CHAPTER I.

SCOPE AND CHARACTER OF THE PRESENT INQUIRY.

The appointment of the first tenement house commission in New York, in the winter of 1856–57, which was followed by the creation of the metropolitan board of health in 1866, marks the beginning of serious interest in the housing of city wage earners in this country. The naming of three subsequent commissions—one in 1884, one in 1887, and the other just completing its functions—while indicating that the problem has not been solved, shows conclusively that interest is by no means on the wane. The Massachusetts bureau of statistics of labor has recently completed an exhaustive inquiry into the condition of tenement houses in the city of Boston. By direction of Congress the United States Commissioner of Labor has carried out an investigation of the slums of large representative American cities, and his Ninth Annual Report is a comprehensive exposition of the work and status of building and loan associations in this country. England, by a succession of general and local enactments from 1851 to 1891, has remodeled her sanitary law and otherwise legally encouraged better housing for the people. Belgium, in 1889, enacted a measure which organizes public spirited and well intentioned effort for the benefit of the poor, by means of committees of patronage, by permitting the General Savings Bank (*la Caisse Générale d'Épargne et de Retraite*) to loan money at a low rate of interest to local loan and building companies who aim to make the workingman the proprietor of his home, and by incorporating with this loan the life insurance feature, so that if the death of the father takes place before the property has been entirely paid for his family may be secured in the possession of their home. This law, which is presented in full in Chapter VII, will repay the most careful study. A measure, similar in salient respects, became a law in France on November 30, 1894, and many of the main features have been suggested for imitation in Germany. The chief merit claimed for the Belgian law is that it presents a practicable scheme for bringing about popular proprietorship of homes at a cost but little, if any, in excess of the ordinary price charged for rent. The reorganized Central Institute for Promoting the Welfare of Working People (*Central-Stelle für Arbeiter-Wohlfahrtseinrichtungen*) in Germany took up as its first task an investigation of model housing enterprises in that country, and the imperial insurance bureau has set aside a

portion of the insurance fund against sickness and invalidity to loan to responsible agencies engaged in the housing of working people. These instances are sufficient, without enumerating the great variety of local and more restricted efforts, to show the widespread interest which this vitally important problem has awakened.

Cities are the rallying grounds of the masses, and it is important to understand what municipal authorities are doing to counteract the effects of overcrowding and bad sanitation. Chapter II, while disclosing general sanitary organization in England, France, Belgium, and Germany, gives special attention to the local regulations of metropolitan centers within these countries and the United States. A comparative method of social study is the only really valuable one, and the disclosure of what is being done in one center is a positive advantage to all the others. Local conditions, of course, may vary, but the efficiency of general lines of policy is the point to gauge. Chapter III deals with expropriations for purposes of public health in their legal aspect and financial and sanitary results. The facts cited are useful both for precept and for warning. Chapter IV treats of certain results of sanitary reform in a few metropolitan centers at home and abroad. Chapter V deals with sanitary aid societies and their work. Chapter VI sets forth the building regulations of representative cities in different countries with the aim of showing what provision is made for guarding against the perpetuation of structurally defective habitations. Chapter VII treats of public intervention in the housing of working people, giving the most notable laws which have been passed and furnishing data showing the encouragement accorded by municipalities, savings banks, etc. Chapter VIII presents information in relation to rent collecting and other agencies for improving the living environment of working people. Chapters IX, X, and XI deal with model housing, and treat respectively of block buildings, small houses, and lodging houses. These three chapters constitute the major part of the present volume. The prominence given them is justified, because it is important to know whether model effort has accomplished or can accomplish useful work. Hence a history of the operation and financial results attending the activities of model enterprises has received conspicuous attention. There exists an undoubted sphere of effort for them in all communities, and for this reason great pains have been taken to present all the facts (even to technical details), with plans of various types of buildings, so that any community, corporation, or individual contemplating action may find in these pages a choice of that particular form of enterprise which will best suit local conditions. It is not pretended that a complete census of model enterprises has been made, but it is believed that almost all of importance in Great Britain, France, Belgium, Germany, the Scandinavian countries, and the United States have received mention. It may be a revelation to some to know that so many exist. The general lesson gleaned from a study of the facts

in these three chapters is encouraging. It shows that proper housing of the great masses of working people can be furnished on a satisfactory commercial basis.

Appeal to European experience is quite justifiable. There has been much more comprehensive work done abroad than here. There are, of course, differences in habits and customs among residents of the several countries, but it is in the city as such where the problem presses most. In large aggregations of population, no matter of what nationality, practically similar phases present themselves. Particularly does any experience in housing the very poor and the submerged become of great value.

Building associations have only occasionally been mentioned in the following pages. Wherever a few of them have been found conducting model housing operations a notice appears in one of the two chapters dealing with this subject. The comprehensive report of the United States Department of Labor upon building and loan associations in the United States, and the fact that these institutions loan money, leaving to the individual his own choice in the construction of his home without reference to models or types, makes superfluous any further treatment than has been accorded.

It may be noticed that in presenting the facts for specific model enterprises a statement of the annual cost of maintenance and repairs has been omitted. These facts would have been of no little interest and they were not overlooked, but it was found that there was no uniform interpretation as to what should be included under maintenance, and hence any figures presented would have been misleading. It was thought better, therefore, to omit all items in reference to such outlay.

Chapter XII is entitled "Economic and ethical aspects." The caption may suggest more than perusal of the text will justify. Academic discussions have no part in a statistical investigation such as this; hence only the economic and ethical features of the facts revealed by the inquiry have received treatment. Chapter XIII summarizes briefly some of the more important conclusions.

The aim of this report is to communicate information which will be serviceable to all persons who are in any way concerned with house sanitation, to architects, builders, philanthropists, or public spirited citizens, and especially to all who may desire to promote the growth of model housing enterprises. The best methods of rendering dwellings habitable, of eradicating slums, of guaranteeing the sanitary character of new buildings, of multiplying model dwellings, and of developing popular proprietorship of homes are presented, not in theory, but as they exist in fact.

CHAPTER II.

SANITARY LAWS.

CHAPTER II.

SANITARY LAWS.

Wisely conceived and well enforced sanitary laws are a supreme necessity of modern civilization. The let-alone policy, if admitted, would mean that urban populations would periodically suffer from fearful epidemics, and that a vast number would fall into pauperism and moral degradation under the irresistible impulsion of unhealthy environments. Legislatures have thus seen the necessity of endowing metropolitan centers with large powers for their self-protection. In New York these powers are especially drastic. Recently a better code has been established in London, but most of the continental countries have not yet fully risen to the occasion. A difficulty in many cities both here and abroad is that sufficient power of initiative has not been given to the sanitary authorities. Bothersome enabling acts must frequently be secured before urgent work can be done. Generally speaking, urban sanitary law in the United States and Great Britain is fairly complete, but almost universal complaint is heard that it is not fully enforced. Many of the most competent witnesses before the English royal commission, in 1885, stated that further regulations were of minor importance as compared with the necessity of enforcing those already in existence. Added vigilance and increased inspection were enjoined by the commissioners in their report as a means of improving the house accommodations of working people.

In one notable way sanitary law may further good housing. As stringency increases and owners are compelled to keep their property in good repair they are obliged to exercise greater care in the selection of tenants. The undesirable classes are thus likely ultimately to find themselves corralled in specific neighborhoods. They can then be the more easily looked after.

This report does not presume to outline model sanitary law. Without offering any direct suggestions, it is content to present those regulations which are enforced in England, France, Belgium, and Germany. It seeks to describe the general organization and to give the regulations applicable to one leading city in each of these countries and in the United States. The law for New York is first mentioned. It is probably the most complete and efficient of existing sanitary codes.

NEW YORK CITY.

The head of the New York health department is the board of health, which consists of the president of the board of police, the health officer of the port, and two officers to be called commissioners of health, one of whom must have been a practicing physician for at least five years preceding his appointment. The other commissioner, who is not a physician, shall be the president of the board. Both commissioners hold office for six years.

The department of health is divided into two bureaus. The chief officer of one bureau is called the sanitary superintendent, who at the time of his appointment must have been for ten years a medical practitioner and for three years a resident of the city. The chief officer of the second bureau is called the register of records, and this bureau deals with vital and other statistics. The sanitary superintendent enforces the provisions of the sanitary code and the laws and the ordinances relating to tenements and lodging houses, etc.

The board of health has executive, judicial, and legislative powers. It establishes its own sanitary code, which is supplementary to the laws and ordinances relating to the subject. It can order the inspection of any premises at any time, and is empowered to call upon the police authorities to enforce sanitary laws and regulations. Refusal to obey orders or to conform to regulations is considered a misdemeanor, and the responsible parties, in addition to being subject to punishment therefor, incur a penalty of $250, to be sued for and recovered by the board in any civil tribunal in the city. Whenever a minimum penalty for refusal to obey or for a violation of an order, regulation, or ordinance is not fixed, the amount recovered shall not be less than $20, the exact sum to be fixed by the judge presiding at the trial.

The board can order a house vacated when unfit for human habitation by a vote of three out of the four members. In all such cases in the past there has not really been a dissenting voice. An order to vacate must be posted conspicuously in the interdicted building or part thereof, and must be personally served on the owner, lessee, agent, occupant, or any person having charge. If such person can not be found, service of the order may be made through the mail. Orders to vacate are by no means infrequently made. Seventy-five of them were issued between the latter part of May and the middle of July, 1893. The sanitary superintendent has a force of forty inspectors continuously at his service. Twenty of them are physicians and the remainder are technicians in the department of service to which they are assigned.

The members of the board of health, the sanitary superintendent, or any of his subordinates, may enter upon, examine, and survey all grounds, buildings, apartments, etc., and inspect their safety and sanitary condition, making plans, drawings, and descriptions. The board may publish a report of the sanitary condition and results of such inspections in so far as it considers the publications to be useful.

Until June, 1891, the control of light and ventilation, plumbing, and drainage of all new buildings belonged to the sanitary department of the board of health. At that date, however, the division was transferred to a new department of buildings. The powers of the board, however, still extend to the repairs of buildings, houses, and other structures, and the sanitation of new buildings, sewerage, drainage, plumbing, lighting, and ventilation of all structures after they have once been completed.

The law requires that all work must be done by registered plumbers; that all persons pursuing this craft must register under such rules and regulations as the board of health may prescribe. It is unlawful for any other than a registered plumber to carry on the plumbing business in the city.

It is made the duty of the police department to promptly notify the board of health of any threatened danger to human life and regularly to report all violations of health laws and ordinances, and to give any useful sanitary information. The execution of orders is committed to the police department, and at such times police officers have as ample power and authority as when obeying any prescription of the board of police or when acting under the warrant of a judge. They are responsible for their conduct, however, to the board of police, and not to the board of health.

For the purpose of carrying out the provisions of the law in relation to tenement and lodging houses, as well as to enforce the provisions of the sanitary code, forty-five policemen, who are men of experience and who have had at least five years' service, are detailed for work under the board of health. Fifteen of these are occupied exclusively in the enforcement of laws relating to tenement and lodging houses. These officers are known as the sanitary company of police, and report to the president of the board of health. The latter body pays their salaries and reports any cases for discipline back to the police department. Should objections be made on the ground of inefficiency, another detail must be made. These officers take pride, as a usual thing, in their work. They are entitled to retire after twenty years' service, but, as a matter of fact, they rarely do so. While on inspection duty each sanitary policeman carries a memorandum book in which he notes any cause for complaint. The following is a list of subjects upon which he has to report:

Location.—Number of families; number of occupants; privy accommodations—number of sittings; housekeeper on premises; owner on premises.

Cellars, if occupied for dwelling purposes.—Whether floor is water-tight; whether the ceiling is plastered.

Yards.—Whether properly graded; whether sewer connected.

Front areas.—Whether graded; whether sewer connected; sanitary condition.

Waste pipes.—Whether joints are connected with cement or lead; whether trapped; whether ventilated 2 feet above the roof.

Soil pipes.—Whether joints are connected with cement or lead; whether trapped.

General inspection.—Cellars; stairs and balusters throughout the house; walls and ceilings of halls and rooms throughout the house; floors of rooms and halls throughout the house; slop sinks, whether trapped and ventilated; wash basins, whether trapped and trap ventilated; bath tubs, whether trapped and trap ventilated; Croton supply pipes; roof; wash roof; skylights; leaders; eaves gutters; chimneys; fire-escapes; water-closets, whether trapped and trap ventilated; privy vaults; school sinks; privy houses; cesspools; urinals, whether properly flushed; clothes poles; fences; hydrants in yard; airshafts.

Ash receptacles.—Whether sufficient; in sanitary condition; whether kept within stoop line.

The sanitary policeman rectifies minor nuisances, but those which can not be dealt with, either because of the unwillingness of the responsible party to make the necessary ameliorations, or because of lack of technical knowledge, are reported to the board for action. If the case is a simple one, an order is immediately made, but where technical matters are involved, one of the regular sanitary inspectors is detailed for inquiry and report before final disposition is made. One of the most important duties of the sanitary police is to make night inspections of tenement and lodging houses, to see that overcrowding does not occur. The inspection of tenement houses, obligatory at least twice each year, is made by the sanitary police force.

Citizens' complaints relating to tenement houses are referred to either a sanitary police officer or a sanitary inspector, according to the nature of the complaint. If, upon examination, the nuisance is found to require an expert examination, reference is made to the sanitary inspector for further examination and report, with recommendations. Where urgency exists, twenty-four or forty-eight hours' time is allowed for compliance with the terms of the order. Where there is no special need for haste, five days is the ordinary limit allowed. In the former case the sanitary police officer is sent at once to the responsible person to give information of the terms of the order and the time set for its execution. At the end of the allotted period he visits the premises, and if the nuisance remains unabated or the work has not been commenced his report of the facts to the board involves the issuance of a new order of arrest for noncompliance.

Technical sanitary inspectors are required to have a thorough knowledge of their districts and to make a general inspection of them from time to time and to make special reports upon localities which may become dangerous to life and health. To them are referred citizens' complaints where technical knowledge is necessary.

The salary list of the board of health in 1891 amounted to $222,984.22.

The special laws which govern tenement and lodging houses in the city of New York appear below. They are given in full because of their importance and with the hope that they may be useful as a model for other cities which are compelled to deal with the tenement house evil. The proportion of the lot that may be covered with buildings, the drainage of yards and areas, plumbing, water-closet accommodation, disposal of garbage, cleaning of yards, requirements as to ventilation,

distances between front and rear tenement, open spaces at the rear, cubic air space assigned to individuals, and provision of janitor are all subjects of minute prescription. A tenement house is defined to be "every house building or portion thereof which is rented, leased, let or hired out to be occupied or is occupied as the home or residence of three families or more, living independently of each other, and doing their cooking upon the premises, or by more than two families upon any floor, so living and cooking, but having a common right in the halls, stairways, yards, water-closets or privies, or some of them." By lodging house is meant any construction where persons are received or lodged upon payment of a sum of money for a single night or for less than one week at a time.

LAWS RELATING TO TENEMENT AND LODGING HOUSES IN NEW YORK CITY.

LAWS OF 1882.

SECTION 649 (as amended by chapter 84, laws of 1887). No house, building or portion thereof, in the city of New York, shall be used, occupied, leased or rented for a tenement or lodging house unless the same conforms in its construction and appurtenances to the requirements of this title; and if occupied by more than one family on a floor, and if the halls do not open directly to the external air, with suitable windows, without a room or other obstruction at the end, it shall not be used, occupied, leased or rented, unless sufficient light and ventilation is otherwise provided for in said halls.

SEC. 650. Every house, building, or portion thereof, in the city designed to be used, occupied, leased, or rented, or which is used, occupied, leased, or rented for a tenement or lodging house, shall have in every room which is occupied as a sleeping room, and which does not communicate directly with the external air, a ventilating or transom window, having an opening or area of three square feet over the door leading into and connected with the adjoining room, if such adjoining room communicates with the external air, and also a ventilating or transom window of the same opening or area, communicating with the entry or hall of the house, or where this is, from the relative situation of the rooms, impracticable, such last-mentioned ventilating or transom window shall communicate with an adjoining room that itself communicates with the entry or hall. Every such house or building shall have in the roof, at the top of the hall, an adequate and proper ventilator, of a form approved by the inspector of buildings.

SEC. 651. Every such house shall be provided with a proper fire-escape, or means of escape in case of fire, to be approved by the inspector of buildings.

SEC. 652. The roof of every such house shall be kept in good repair, and so as not to leak, and all rain water shall be so drained or conveyed therefrom as to prevent its dripping on to the ground, or causing dampness in the walls, yard, or area. All stairs shall be provided with proper banisters and railings, and shall be kept in good repair.

SEC. 653 (as amended by chapter 84, laws of 1887). Every tenement and lodging house or building shall be provided with as many good and sufficient water-closets, improved privy sinks or other similar receptacles as the board of health shall require, but in no case shall

there be less than one for every fifteen occupants in lodging houses, and not less than one for every two families in dwelling houses. The water-closets, sinks and receptacles shall have proper doors, soil pipes and traps, all of which shall be properly ventilated to prevent the escape of deleterious gas and odors, soil pans, cisterns, pumps and other suitable works and fixtures, necessary to insure the efficient operation, cleansing and flushing thereof. Every tenement and lodging house situated upon a lot on a street or avenue in which there is a sewer, shall have a separate and proper connection with the sewer; and the water-closets, sinks and other receptacles shall be properly connected with the sewer by proper pipes made thoroughly air-tight. Such sewer connection and all the drainage and plumbing work, water-closets, sinks and other receptacles, in and for every tenement and lodging house shall be of the form, construction, arrangement, location, materials, workmanship and description to be approved, or such as may be required by the board of health of the health department of the city of New York. Every owner, lessee and occupant shall take adequate measures to prevent improper substances from entering such water-closets, or sinks or their connections, and to secure the prompt removal of any improper substances that may enter them, so that no accumulation shall take place, and so as to prevent any exhalations therefrom, offensive, dangerous and prejudicial to life or health and so as to prevent the same from being or becoming obstructed. Every person who shall place filth, urine or foecal matter in any place in a tenement house other than that provided for the same, and every person who shall keep filth, urine or foecal matter in his apartment or upon his premises such length of time as to create a nuisance shall be guilty of a misdemeanor; no privy, vault or cesspool shall be allowed in or under or connected with any such house except when it is unavoidable, and a permit therefor shall have been granted by the board of health, and in such case it shall be constructed in such situation and in such manner as the board of health may direct. It shall in all cases be water-tight and arched or securely covered over, and no offensive smell or gases shall be allowed to escape therefrom, or from any closet, sink or privy. In all cases where a sewer exists in the street or avenue upon which the house or building stands, the yard or area shall be connected with the sewer, that all water from the roof or otherwise, and all liquid filth shall pass freely into the sewer. Where there is no sewer in the street or avenue, or adjacent thereto, to which connection can be made, the yard and area shall be so graded that all water from the roof or otherwise, and all filth shall flow freely therefrom into the street gutter, by a passage beneath the sidewalk, which passage shall be covered by a permanent cover, but so arranged as to permit access to remove obstructions or impurities. It shall be the duty of the board of health to enforce the provisions of this section in regard to privy vaults as soon as practicable, but said board shall permit no privy vault to remain connected with a tenement house later than January first, eighteen hundred and eighty-seven (*a*) except in the cases especially named in this section.

SEC. 654. It shall not be lawful, without a permit from the board of health, to let or occupy, or suffer to be occupied separately as a dwelling, any vault, cellar, or underground room built or rebuilt after July first, eighteen hundred and sixty-seven, or which shall not have been so let or occupied before said date. It shall not be lawful without such permit to let or continue to be let, or to occupy or suffer to be occupied separately as a dwelling any vault, cellar, or underground room what-

a So in the original.

soever, unless the same be in every part thereof at least seven feet in height, measured from the floor to the ceiling thereof, nor unless the same be for at least one foot of its height above the surface of the street or ground adjoining or nearest to the same, nor unless there be outside of and adjoining the said vault, cellar, or room, and extending along the entire frontage thereof, and upwards from six inches below the level of the floor thereof, up to the surface of the said street or ground an open space of at least two feet and six inches wide in every part, nor unless the same be well and effectually drained by means of a drain, the uppermost part of which is one foot at least below the level of the floor of such vault, cellar, or room, nor unless there is a clear space of not less than one foot below the level of the floor, except where the same is cemented, nor unless there be appurtenant to such vault, cellar, or room, the use of a water-closet or privy kept and provided as in this title required; nor unless the same have an external window opening of at least nine superficial feet clear of the sash frame, in which window opening there shall be fitted a frame filled in with glazed sashes, at least four and a half superficial feet of which shall be made so as to open for the purpose of ventilation. Provided, however, that in the case of an inner or back vault, cellar, or room, let or occupied along with a front vault, cellar, or room, as part of the same letting or occupation, it shall be a sufficient compliance with the provisions of this section if the front room is provided with a window as hereinbefore provided, and if the said back vault, cellar, or room is connected with the front vault, cellar, or room by a door, and also by a proper ventilating or transom window, and, where practicable, also connected by a proper ventilating or transom window, or by some hall or passage communicating with the external air. Provided always that in any area adjoining a vault, cellar, or underground room there may be steps necessary for access to such vault, cellar, or room, if the same be so placed as not to be over, across, or opposite to the said external window, and so as to allow between every part of such steps and the external wall of such vault, cellar, or room, a clear space of six inches at least, and if the rise of said steps is open; and provided further that over or across any such area there may be steps necessary for access to any building above the vault, cellar, or room to which such area adjoins, if the same be so placed as not to be over, across, or opposite to any such external window.

SEC. 655. No vault, cellar, or underground room shall be occupied as a place of lodging or sleeping, except the same shall be approved, in writing, and a permit given therefor by the board of health.

SEC. 656. Every tenement or lodging house shall have the proper and suitable conveniences or receptacles for receiving garbage and other refuse matters. No tenement or lodging house, nor any portion thereof, shall be used as a place of storage for any combustible article, or any article dangerous to life or detrimental to health; nor shall any horse, cow, calf, swine, pig, sheep, or goat be kept in said house.

SEC. 657 (as amended by chapter 84, laws of 1887). Every tenement or lodging house, and every part thereof shall be kept clean and free from any accumulations of dirt, filth, garbage or other matter in or on the same, or in the yard, court, passage, area or alley connected with it or belonging to the same. The owner or keeper of any lodging house, and the owner or lessee of any tenement house or part thereof, shall thoroughly cleanse all the rooms, passages, stairs, floors, windows, doors, walls, ceilings, privies, cesspools and drains of the house or part of the house of which he is the owner or lessee, to the satisfaction of the board of health, so often as he shall be required by or in accord-

ance with any regulation or ordinance of said board, and shall well and sufficiently, to the satisfaction of the said board, whitewash the walls and ceilings thereof twice at least in every year, in the months of April and October, unless the said board shall otherwise direct. Every owner of a tenement or lodging house, and every person having control of a tenement or lodging house, shall file in the department of health a notice containing his name and address, and also a description of the property by street number, or otherwise, as the case may be, in such manner as will enable the board of health easily to find the same; and also the number of apartments in each house, the number of rooms in each apartment, the number of families occupying each apartment, and the trades or occupations carried on therein. Every person claiming to have an interest in any tenement or lodging house may file his name and address in the department of health. All notices and orders of the board of health required by law to be served in relation to a tenement or lodging house shall be served by posting in some conspicuous place in the house, a copy of the notice or order, five days before the time for doing the thing in relation to which said notice or order was issued. The posting of a copy of an order or notice, in accordance with this section, shall be sufficient service upon the owner of the property affected. It shall be the duty of the board of health to cause a copy of every such notice or order to be mailed, on the same day that it is posted in the house, addressed to the name and address of each person who has filed with the department of health the notice provided for in this section.

SEC. 658 (as amended by chapter 84, laws of 1887). It shall be the duty of the board of health to cause a careful inspection to be made of every tenement and lodging house at least twice in each year. And whenever the board of health has made any order concerning a tenement or lodging house, it shall cause a reinspection to be made of the same within six days after it has been informed that the order has been obeyed. The keeper of any lodging house, the owner, agent of the owner, lessee and occupant of any tenement house, and every other person having the care and management thereof, shall at all times, when required by any officer of the board of health, or by any officer upon whom any duty is conferred by this title, give him free access to such house and to every part thereof. The owner or keeper of any lodging house, and the owner, agent of the owner, and the lessee of any tenement house, or part thereof, shall whenever any person in such house is sick of fever, or of any infectious, pestilental (*a*) or contagious disease, and such sickness is known to such owner, keeper, agent or lessee, give immediate notice thereof to the board of health, or to some officer of the same, and thereupon said board shall cause the same to be inspected, and may, if found necessary, cause the same to be immediately cleansed or disinfected at the expense of the owner, in such manner as they may deem necessary and effectual; and they may also cause the blankets, bedding and bedclothes used by any such sick person to be thoroughly cleansed, scoured and fumigated, or in extreme cases to be destroyed.

SEC. 659 (as amended by chapter 84, laws of 1887). Whenever it shall be certified to the board of health of the health department of the city of New York by the sanitary superintendent, that any building or part thereof in the city of New York is infected with contagious disease, or by reason by want of repair has become dangerous to life, or is unfit

a So in the original.

for human habitation because of defects in drainage plumbing, ventilation, or the construction of the same, or because of the existence of a nuisance on the premises and which is likely to cause sickness among its occupants, the said board of health may issue an order requiring all persons therein to vacate such building or part thereof for the reasons to be stated therein as aforesaid. Said board shall cause said order to be affixed conspicuously in the building or part thereof and to be personally served on the owner, lessee, agent, occupant or any person having the charge or care thereof; if the owner, lessee or agent can not be found in the city of New York or do not reside therein or evade or resist service, then said order may be served by depositing a copy thereof in the post office in the city of New York, properly inclosed and addressed to such owner, lessee or agent at his last known place of business or residence, and prepaying the postage thereon; such building or part thereof shall within ten days after said order shall have been posted and mailed as aforesaid or within such shorter time not less than twenty-four hours, as in said order may be specified, be vacated, but said board whenever it shall become satisfied that the danger from said building or part thereof has ceased to exist, or that said building has been repaired so as to be habitable, may revoke said order.

SEC. 660. No house erected after May fourteenth, eighteen hundred and sixty-seven, shall be used as a tenement house or lodging house, and no house heretofore erected and not now used for such purpose shall be converted into, used, or leased for a tenement or lodging house, unless, in addition to the requirements hereinbefore contained, it conforms to requirements contained in the following sections of this title:

SEC. 661 (as amended by chapters 84 and 288, laws of 1887). It shall not be lawful hereafter to erect for, or convert to the purposes of a tenement or lodging house, a building on any lot where there is another building on the same lot, or to build, or to erect any building on any lot whereon there is already a tenement or lodging house, unless there is a clear open space exclusively belonging thereto, and extending upward from the ground of at least ten feet between said buildings if they are one story high above the level of the ground; if they are two stories high, the distance between them shall not be less than fifteen; if they are three stories high, the distance between them shall not be less than twenty feet; and if they are more than three stories high, the distance between them shall not be less than twenty-five feet; but when thorough ventilation of such open spaces can be otherwise secured, such distances may be lessened or modified in special cases by a permit from the board of health. At the rear of every building hereafter erected for or converted to the purposes of a tenement or lodging house on any lot, there shall be and remain a clear open space of not less than ten feet between it and the rear line of the lot, but this provision may be modified as to corner lots in special cases by a permit from the board of health. No one continuous building shall be built for or converted to the purposes of a tenement or lodging house in the city of New York, upon an ordinary city lot, and no existing tenement or lodging house shall be enlarged or altered, or its lot be diminished so that it shall occupy more than sixty-five per centum of the said lot, and in the same proportion if the lot be greater or less in size than twenty-five feet by one hundred feet; but this provision shall not apply to corner lots, and may be modified in other special cases by a permit from the board of health. In case of any violation of the provisions of this section, or of any failure to comply with or of any violation of the terms and conditions of the plan for such tenement or lodging house approved

by the said board of health, or of the conditions of the permit granted by the board of health for such house, or for the air, light and ventilation of the same, any court of record, or any judge or justice thereof shall have power, at any time after service of notice of violation, or of noncompliance, upon the owner, builder or other person superintending the building or converting of any such house, upon proof by affidavit of any violation or noncompliance as aforesaid, or that a plan for light and ventilation of such house has not been approved by the board of health, to restrain by injunction order, in an action by the health department, of the further progress of any violation as aforesaid. No undertaking shall be required as a condition of granting an injunction, or by reason thereof.

SEC. 662. In every such house hereafter erected or converted every habitable room, except rooms in the attic, shall be in every part not less than eight feet in height from the floor to the ceiling; and every habitable room in the attic of any such building shall be at least eight feet in height from the floor to the ceiling, throughout not less than one-half the area of such room. Every such room shall have at least one window connecting with the external air, or over the door a ventilator of perfect construction, connecting it with a room or hall which has a connection with the external air, and so arranged as to produce a cross current of air. The total area of window or windows in every room communicating with the external air shall be at least one-tenth of the superficial area of every such room; and the top of one, at least, of such windows shall not be less than seven feet six inches above the floor, and the upper half, at least, shall be made so as to open the full width. Every habitable room of a less area than one hundred superficial feet, if it does not communicate directly with the external air, and is without an open fireplace, shall be provided with special means of ventilation, by a separate airshaft extending to the roof, or otherwise, as the board of health may prescribe. But in all houses erected or converted, after June sixteenth, eighteen hundred and seventy-nine, which shall be used, occupied, leased, or rented for a tenement or lodging house, every room used, let, or occupied by any person or persons for sleeping shall have at least one window, with a movable sash, having an opening of not less than twelve square feet, admitting light and air directly from the public street or the yard of said house, unless sufficient light and ventilation shall be otherwise provided, in a manner and upon a plan approved by the board of health.

SEC. 663 (as amended by chapter 84, laws of 1887). Every such house erected after May fourteenth, eighteen hundred and sixty-seven, or converted, shall have adequate chimneys running through every floor, with an open fireplace or grate, or place for a stove, properly connected with one of said chimneys for every family set of apartments. It shall have proper conveniences and receptacles for ashes and rubbish. It shall have Croton or other water furnished in sufficient quantity at one or more places on each floor, occupied or intended to be occupied by one or more families; and all tenement houses shall be provided with a like supply of water by the owners thereof whenever they shall be directed so to do by the board of health. But a failure in the general supply of water by the city authorities shall not be construed to be a failure on the part of such owner provided that proper and suitable appliances to receive and distribute such water are placed in said house. Provided that the board of health shall see to it that all tenement houses are so supplied before January first, eighteen hundred and eighty-nine. Every tenement house shall have the floor of the cellar made water-tight; and

the ceiling plastered, and when the house is located over filled-in ground, or over marshy ground, or ground on which water lies, the cellar floor shall be covered so as to effectually prevent evaporation or dampness. It shall be the duty of the board of health (*a*) that the cellars of all tenement houses are so made or altered as to comply with this section before January first, eighteen hundred and ninety. Every such house erected after May seventh, eighteen hundred and eighty-seven, or converted shall have the halls on each floor open directly to the external air, with suitable windows, and shall have no room or other obstruction at the end, unless sufficient light or ventilation is otherwise provided for in said halls in a manner approved by the board or health.

SEC. 664 (as amended by chapter 84, laws of 1887). Whenever it shall be certified to the board of health by the sanitary superintendent that any tenement house or room therein is so overcrowded that there shall be afforded less than six hundred cubic feet of air to each occupant of such building or room, the said board may if it deem the same to be wise or necessary, issue an order requiring the number of occupants of such building or room to be reduced, so that the inmates thereof shall not exceed one person to each six hundred cubic feet of air space in such building or room. Whenever there shall be more than eight families living in any tenement house, in which the owner thereof does not reside, there shall be a janitor, housekeeper or some other responsible person, who shall reside in the said house, and have charge of the same, if the board of health shall so require.

SEC. 665. Every owner or other person violating any provision of this title shall be guilty of a misdemeanor, punishable by a fine of not less than ten dollars nor more than one hundred dollars, or by imprisonment for not more than ten days for each and every day that such violation shall continue, or by both such fine and imprisonment, in the discretion of the court. He shall also be liable to pay a penalty of ten dollars for each and every day that such offense shall continue. Such penalty may be sued for and recovered by the board of health, and when recovered shall be paid over to the city chamberlain and become part of the tenement house fund, directed by section one hundred and ninety-four, subdivision nine, of this act, to be annually appropriated to the credit of the health department and to be expended by the board of health. In every proceeding for a violation of this title, and in every such action for a penalty, it shall be the duty of the owner of the house to prove the date of its erection or conversion to its existing use, if that fact shall become material, and the owner shall be prima facie the person liable to pay such penalty, and after him the person who is the lessee of the whole house, in preference to the tenant or lessee of a part thereof. In such action the owner, lessee, and occupant, or any two of them, may be made defendants, and judgment may be given against the one or more shown to be liable, as if he or they were sole defendant or defendants.

SEC. 666 (as amended by chapter 84, laws of 1887). A tenement house within the meaning of this title shall be taken to mean and include every house building or portion thereof which is rented, leased, let or hired out to be occupied or is occupied as the home or residence of three families or more, living independently of each other, and doing their cooking upon the premises, or by more than two families upon any floor, so living and cooking, but having a common right in the halls, stairways, yards, water-closets or privies or some of them. A lodging house shall be taken to mean and include any house or

a So in the original.

building or portion thereof in which persons are harbored or received or lodged for hire for a single night or for less than a week at one time, or any part of which is let for any person to sleep in, for any term less than a week. A cellar shall be taken to mean and include every basement or lower story of any building or house of which one-half or more of the height from the floor to the ceiling is below the level of the street adjoining.

SEC. 667. The board of health shall have authority to make other regulations as to cellars and as to ventilation, consistent with the foregoing, where it shall be satisfied that such regulations will secure equally well the health of the occupants.

COMPLAINTS AND RECOMMENDATIONS.

The board of health has published for the benefit of its inspectors and the public a list of recommendations commonly made to cover certain classes of complaints. They may be considered as types, so to speak, and afford to all interested a simple and speedy method of dealing with insanitary features. The subject-matter of the most common classes of complaints and the recommendations of the inspectors appear in the following statements:

Complaint: That the soil-pipe of the water-closet (give location, etc.) is obstructed, and the bowl (or hopper) is filthy and offensive. Recommendation: That the water-closet be cleaned and all obstructions in soil-pipe removed.

C. That the water-closet is not (or is not properly) flushed, and is offensive. R. That the water-closet be cleaned and properly flushed.

C. That the pan of the water-closet leaks (or is not properly adjusted), and does not preserve a water-seal. R. That the defective pan of water-closet be replaced by a new one (or be readjusted so as to preserve a water-seal).

C. That the hopper of the water-closet is old, corroded, and can not be kept clean, and is filthy and offensive. R. That the old, corroded hopper of water-closet be replaced by a new enameled one.

C. That the floor under the seat of the water-closet is not protected from drippings of urine, and is filthy and offensive. R. That the water-closet be provided with an enameled drip tray, and the floor under the seat cleaned and disinfected.

C. That the drip tray is an old metallic one, filthy with urinary deposits. R. That the old, corroded, filthy drip tray be replaced by an enameled one.

C. That the water-closet apartments are not (or are insufficiently) ventilated. R. That the water-closet apartments be ventilated by a special shaft (8 inches, etc.), extending above the roof, and that the doors be cut away at least 3 inches at the bottom to promote ventilation.

C. That the woodwork of the water-closet is saturated with filth, so that it can not be properly cleaned. R. That the filthy woodwork of water-closet be replaced by new.

C. That the supply-pipe of the water-closet leaks. R. That the supply-pipe, etc., be repaired so as not to leak.

C. That the water-closets (or water-closet on the ——— floor) are flushed directly from the Croton water supply-pipe of the house, and the water used for drinking and cooking purposes is in danger of contamination. R. That each water-closet (give location) be flushed from a water-supplied cistern, properly adjusted over the same.

C. That the school sink (location) is not properly flushed, and is filthy and offensive. R. That the school sink be disinfected, emptied and cleaned, and flushed daily.

C. That the school sink discharges its contents into a manhole which is sewer connected, but is always filthy with sewage. R. That the school sink be connected with house drain (*a*) by a continuous pipe, with running trap and hand-hole, and that said manhole be cleaned and filled with fresh earth.

C. That the urinal is not properly flushed, and is filthy and offensive. R. That the urinal be cleaned and properly flushed.

C. That the urinal is an old, corroded metallic one, filthy and difficult to clean. R. That the old, corroded urinal be replaced by a new enameled one (or by a porcelain one).

C. That the floor under the urinal is not protected, and is filthy with drippings of urine. R. That a safe be constructed under urinal, and the filthy and saturated flooring be replaced by new.

C. That the waste-pipes of the sinks (or urinals, etc.) are not trapped, and the main waste-pipe is not ventilated (or is insufficiently ventilated by a three-quarter inch pipe, etc.). R. That the sinks, etc., be properly trapped, and the main waste-pipe extended in full caliber 2 feet above the roof.

C. That the lead waste-pipes of the sinks are connected with the iron main waste-pipe by defective cement (or putty) joints. R. That all connections between lead waste-pipes from sinks and the main waste-pipe be made with brass ferrules, lead calked, and wiped.

C. That the lead waste-pipe is connected with the iron drain by a lead saddle wired on (or puttied or cemented). R. That the lead waste-pipe be connected with the iron drain by means of an iron saddle hub, brass ferrule, etc.

C. That the lead waste-pipe leaks. R. That the waste-pipe be repaired so as not to leak.

C. That the safe wastes (give location, under pumps, water-closets, basins, etc.) are connected with the soil-pipe and are not sealed. R. That the safe wastes (etc.) be soldered up (or made to discharge through a continuous pipe upon the cellar floor, or into a trapped, sewer connected, water supplied, open sink).

C. That the traps under sinks are emptied by siphoning. R. That the traps (etc.) be so adjusted that they can not be siphoned.

C. That the overflow pipe of tank is connected with the soil-pipe. R. That the tank overflow pipe be disconnected from the pipe.

C. That the waste pipe of ice-box is connected with the house drain. R. That the waste-pipe of the ice-box be disconnected from the drain and be made to discharge into a properly trapped, sewer connected, water supplied, open sink.

C. That the soil-pipe is not ventilated (or is insufficiently ventilated by a 1-inch or 2-inch pipe, etc.). R. That the soil-pipe be ventilated by extending the same in full caliber 2 feet above the roof.

C. That the soil-pipe serves as a leader, and the traps of the sinks and water-closets connected therewith are siphoned. R. That the use of the soil-pipe as a rain leader be discontinued, and a separate and independent rain leader be provided; that the soil-pipe be ventilated by extending same in full caliber 2 feet above the roof.

C. That the soil-pipe is defective (give location). R. That the defects in soil-pipe on ——— floor be closed with iron bands.

a The house drain extends through the front wall of the house; the house sewer from the front wall to street sewer.

C. That the earthenware house drain is defective, and foul gases and liquids escape therefrom into the cellar. R. That the defective earthen house drain be removed, its site cleaned, disinfected and filled with fresh earth, and the premises separately and independently connected with the street sewer by and through heavy iron pipe, at least 6 inches in diameter, with all joints properly lead calked.

C. That there are holes in the iron house drain in cellar. R. That the holes in iron drain in cellar be closed with iron bands.

C. That the house drain is defective (or obstructed), and sewage leaks therefrom into the cellar. R. That the house drain be repaired so as not to leak (or that all obstructions be removed from the house drain, and all defects therein be properly repaired).

C. That the yard (or front or rear area) is not properly graded or drained, and surface water stagnates thereon. R. That the yard (etc.) be properly graded and drained so that all surface water shall be discharged into a properly trapped, sewer connected drain (or into the hydrant sink, etc.).

C. That the pavement of the yard is broken and sunken, so that surface water stagnates thereon. R. That the pavement of the yard be properly repaired.

C. That the (front or rear) leader leaks, and the escaping contents fall into the ——— (or run into the cellar, or render the subjacent wall wet and unhealthy). R. When the foundation walls of houses or walls are made wet by a defective leader, refer to fire department.

C. That the rear leader (or leader of rear extension, etc.) is not trapped, and foul odors therefrom enter the windows of (location). R. That the rear leader (or leader of rear extension) be trapped at its base.

C. That the (front or rear) eaves gutter leaks (or is badly adjusted) so that roof water overflows into ———. R. Refer to fire department.

C. That the roof leaks, rendering the upper rooms damp. R. That the roof be repaired so as not to leak.

C. That the cellar is used as a place of lodging and sleeping; that the ceiling is on a level with the sidewalk (or below, or only 6 inches above); that there is no sub-cellar; that the ceiling is not 7 feet above the floor; that it is ventilated and lighted only by (give details); that it is damp, dark, and unfit for human habitation. R. That the cellar be vacated as a place of lodging and sleeping.

C. That the cellar (areas, halls, etc.) is filthy with dirt, garbage, and rubbish (or sewage, etc.); that the privy house is filthy and offensive with night-soil, etc. R. That the cellar (or yard, privy house, etc.) be cleaned and disinfected.

C. That the walls and ceilings of the halls (front or rear, or both, or of apartments) are dirty. R. That the walls and ceilings (halls, rooms, etc.) be cleaned and whitewashed.

C. That the chimney (or soil-pipe, etc., give location) rises to a level with ——— story of ———, and smoke and coal gas (or offensive odors) therefrom enter the (front, rear, or side) windows of ———. R. That the nuisance caused by the escape of smoke and coal gas from chimney of ——— (or offensive odors from soil-pipe) into ——— be abated.

C. That the ceiling of ——— room (or of hall, etc.) is loose and threatens to fall, a part having already fallen. R. That the ceiling of (rooms, halls, etc.) be properly repaired.

C. That the inner bedrooms have no windows opening into the hall or into the adjoining room, as required by the tenement house act. R. That the inner bedrooms be ventilated by means of a window not less than 3 square feet in area, opening into the hall, and another of equal area opening into the front (or rear) room.

C. That the stable floor and space beneath is not properly drained, and said floor is defective, and the leakage through the same renders the earth beneath very filthy and offensive. R. That all offensive earth be removed from beneath the stable floor, the ground space cleaned, disinfected, cemented, and so graded and drained that all surface water and liquid matter shall be discharged into the street sewer by and through a properly trapped, extra heavy iron drain; that the floor of horse stalls be provided with a valley drain properly trapped and connected with the sewer connected drain.

C. That the vacant lot is constantly wet with surface water, which stagnates thereon. R. That the vacant lot be filled with fresh earth 1 foot above the level of standing water thereon (where there is no sewer in street); that the vacant lot be properly graded and drained, so that all surface water shall be discharged into the street sewer, through a properly trapped drain (where there is a sewer in street).

During the year 1891 the number of inspections and reinspections made by the sanitary inspectors was 59,515, as against 39,202 in 1890, resulting in 13,222 complaints and orders for the abatement of nuisances, as against 9,536 in 1890.

ENGLAND.

The housing of the working classes act of 1890 is the most important English sanitary law, but as it refers chiefly to expropriation and demolition its principal features are set forth in the next chapter. The public health act of 1875 applies to England, with the exception of London, but only brief reference to it is necessary, for the reason that so many of the larger cities derive their powers of dealing with insanitary houses from local improvement acts passed by Parliament.

The earliest example of sanitary law of which there is any record in England was an enactment, in the year 1388, designed to prevent the pollution of rivers and ditches. In the present century the first comprehensive measure was the public health act of 1848, made applicable to the whole country. Under it a general board of health was created. Lord Shaftesbury was chairman of this body and Mr. Edwin Chadwick one of its chief officers. The powers of this general board of health expired by limitation in 1853; they were handed over partly to the home office and partly to the privy council, but were afterwards assumed by the local government board in 1871. Strange as it may seem, London was not included in the operation of the public health act of 1848, but local boards of health were formed in conformity with its provisions in various parts of the country. From 1848 to 1875 a vast amount of tinkering with sanitary legislation was done. In the latter year the enactment which still serves as the provincial code was passed.

Under the law of 1875 two classes of sanitary units were created, namely, urban and rural districts. There are three divisions of the former, boroughs, improvement act districts (districts situated outside of the borough or local government district), and local government dis-

tricts situated without the area of the borough and not coincident with a borough or improvement act district. The administrative authorities for boroughs are the mayor, aldermen, and burgesses; for improvement act districts, the improvement commissioners; and for local government districts, the local board. The administration of rural sanitary districts is confided to the board of guardians.

Urban sanitary authorities are clothed with the power to make by-laws, while the rural are not. Sanitary provisions include regulations in regard to sewerage and drainage, water supply, scavenging and cleansing, privies and water-closets, and nuisances. Under the category of nuisances appear premises in such a state as to be injurious to health, or a pool, ditch, gutter, water-course, privy, urinal, cesspool, drain, or ash-pit so foul as to be injurious to health, and houses or parts of houses so overcrowded as to be inimical to the health of the inmates.

The obligation is placed upon every local authority to have an inspection of the district made from time to time in order to discover nuisances. They are strictly enjoined to proceed with abatement, no matter whether the knowledge results from inspection or from information received through the aggrieved party or from any two inhabitant householders of the district, or through such officials as police or relieving officers. The procedure necessary is to serve the notice on the responsible person through whose default, act, or sufferance the nuisance exists, or in case such person can not be found, on the owner or occupier of the premises, requiring him to make abatement within a reasonable period, which is generally construed to mean twenty-four hours. In case of failure to comply with the requisition within the specified time, or where the nuisance is likely to recur, the local authority makes a complaint before a justice of the peace who issues a summons requiring the person on whom the notice was served to appear before a court of summary jurisdiction. The court makes an order upon him to comply with all the requisitions of the notice, or to do any necessary works in abatement or prevention. The court may, by their order, impose a penalty not exceeding £5 ($24.33) on the person on whom the order is made. When the nuisance is such as to render the house unfit for human habitation, the court may prohibit its use for such purposes until the proper repairs have been made. Any person not obeying an order to comply with the requisitions of the local sanitary authority is liable to a penalty not exceeding 10s. ($2.43) per day during the period of his default. If he acts knowingly and willfully in contravention of an order of prohibition he is liable to a penalty not exceeding 20s. ($4.87) per day during such contrary action. The local sanitary authorities have always the right to enter the premises and abate the nuisance themselves, recovering in a summary manner the expenses incurred by them from the person upon whom the order was originally made. In cases where the responsible party is not known or can not be found the order of the court may be executed by the local sanitary

authority itself. Entry upon premises is permitted between 9 a. m. and 6 p. m.

Should the local authorities fail in their duty, complaints may be made by any person aggrieved thereby, or by any inhabitant or owner of premises within the district, and like proceedings and consequences shall follow as in the case where the complainant was the local authority. Should the local authority be derelict in its duties, appeal may be made to the local government board, which, if an affirmative view be taken, may authorize an officer of police within the district to institute any proceedings which the defaulting authority is competent to initiate. Power to enter a house or part of a house used as a dwelling without consent of the inhabitant or without a warrant from a justice is not given. The local sanitary authority is not restricted to summary proceedings only, but where an inadequate remedy would there be found is entitled to take proceedings in any superior court of law or equity in order to enforce the abatement or prohibition of nuisances or to secure the recovery of penalties or a punishment of offending persons.

Where overcrowding occurs and two convictions have been made within three months, no matter whether the responsible parties were the same or not, a court of summary jurisdiction may direct the closing of the houses for whatever period is deemed necessary upon the simple application of the sanitary authorities.

The scavenging and cleansing of premises, including the removal of house refuse and the contents of earth closets, privies, ash-pits, and cesspools, may be undertaken voluntarily, or obligatorily if ordered by the local government board, by the local sanitary authorities. They either contract for this work themselves or they make by-laws imposing the obligation upon occupiers to do the work at proper intervals.

The local sanitary authorities are competent to enforce adequate supply of water-closets and ash-pits in all newly erected or rebuilt houses, but there is no provision making a water supply to such closets compulsory. Public sewerage and drainage are under the control of the local sanitary authority. Very complete powers are given for the acquisition and maintenance of sewers and drains. Drainage may be required for undrained houses.

Owners of houses without water supply in them may be compelled to provide it upon proper orders. Where nothing is done to carry out requirements in this respect local sanitary authorities may themselves direct or furnish a supply at the expense of the owner or occupier, as the case may be.

The act of 1875 stopped the growth of cellar dwellings. It provided that no vault or underground room thereafter built or rebuilt should be let or occupied as a dwelling. As regards cellars already inhabited, it required that they should be 7 feet high and that at least 3 feet of their height should be above the surface of the street or adjoining ground. There must also be outside and adjoining the cellar, and extending

along the entire front, and upward from 6 inches below the level of the floor to the surface of the street or ground, an open area at least 2½ feet wide. There must likewise be drains, closets or privies, and ash-pits as well as fireplaces, and an external window 9 square feet in size and readily opened. The penalty for the rental of cellars for dwelling purposes not provided in the manner already described was fixed at not exceeding 20s. ($4.87) per day. Where two convictions have taken place within three months the premises may be closed either temporarily or permanently.

THE PUBLIC HEALTH (LONDON) ACT OF 1891.

The public health (London) act of 1891 represents a consolidation, so to speak, of sanitary enactments for the metropolis. The competent authorities are, for the city of London proper, the commissioners of sewers, for the greater part of the rest of the county of London the vestries of parishes, and for certain unions of parishes the district board or the board of guardians. These are the bodies to whom is confided the initiative in all sanitary matters. When, however, default is proved with regard to the removal of nuisances or the enforcement of by-laws, etc., the county council has the right to institute proceedings or to do any act which falls within the attributions of the local sanitary authority. It is empowered to make whatever ameliorations seem necessary, and to recover the expenses of the same from the vestry or district board. Not only may the expenses incurred be recovered from the local sanitary authorities, but also if the work is so important as to require a loan, the county council, with the consent of the local government board, is authorized to borrow money in the name of the defaulting authority and secure it in proper manner, that is, upon a rate.

The local sanitary authorities are required by the act of 1891 to cause inspection of the districts to be made from time to time. The exact number of inspections annually are not specified as in certain American cities. The object of these general inspections is to ascertain what nuisances exist and to secure their abatement. At any time, however, any person may, and every sanitary or relieving officer must, give notice of any nuisance coming under observation. Premises injurious or dangerous to health, gutters, cisterns, water-closets, earth closets, privies, urinals, cesspools, drains, ash-pits, or any accumulation so foul as to be inimical or dangerous to health, overcrowded houses, absence of water fittings, occupied dwellings without an adequate water supply, are, as regards housing, the chief nuisances. Upon receipt of information sanitary authorities serve a notice on the responsible party, or, where he can not be found, upon the owner or occupier of the premises, requiring an abatement within a specified time, and ordering him to do whatever work may be necessary to prevent a recurrence. In all cases where the nuisance arises from struc-

tural defects, or where the premises are unoccupied, notice must be served upon the owner. If the responsible party is neither the owner nor the occupier, and if he can not be found, the authorities themselves may abate it and execute proper ameliorations. Whenever a medical officer of health certifies to overcrowding, the sanitary authority is obliged to institute proceedings to correct the evil. Should water fittings be absent this fact alone is construed to render a house unfit for human habitation. Individuals willfully responsible for the nuisance, if making default in complying with the orders of the sanitary authorities, are punishable by a fine not exceeding £10 ($48.67). Whenever the responsible party does not comply with the requests made within the specified time, or if (notwithstanding temporary abatement) the sanitary authority is of the opinion that there will be a recurrence of the nuisance, upon its complaint the petty sessional court may issue a summary order either for abatement, prohibition, or closing. A closing order may only be issued after the court has been satisfied that the nuisance renders a dwelling house absolutely unfit for habitation. In this case not only is the order issued but a fine not exceeding £20 ($97.33) may be imposed. Failure to abate a nuisance carries with it a fine not exceeding 20s. ($4.87) for every day of default. Willful disobedience of a closing order may be punished by a daily fine not exceeding 40s. ($9.73) during the period. The sanitary authority has always the privilege of entering upon the premises and doing whatever work is required to abate or remove the nuisance itself, but appeal is allowed from the court of petty sessions to that of quarter sessions, and during the period of appeal proceedings may not be taken nor work done. Appeal is restricted to prohibition or closing orders, or to such requisitions as require structural works. If the appeal is shown to have been made merely for purposes of delay, the penalties that were fixed by the lower court are not dispensed with. If the appeal under authorization from the lower court is sustained, the sanitary authorities are liable for the cost of abatement and damages. This provision would seem to render extremely conservative action on their part a necessity. Where two convictions for overcrowding take place within three months, no matter whether the parties are the same or not, the petty sessional court may order the premises closed for so long as they deem necessary. When neither the party responsible for the correction of the nuisance nor the owner or occupier of the house can be found, sanitary authorities may, upon orders of the petty sessional court, execute the required ameliorations. Entry may be made on any inhabited premises during any hour of the day for purposes of examination as to the existence of any nuisance liable to be dealt with summarily. Where an order has been either neglected or infringed the premises may be entered at all reasonable hours. Procedure in cases where the information comes from private parties is essentially similar to those instances where the sanitary authorities themselves are the complain-

ants. Practically the only difference is that the court may order an examination of the alleged nuisance by a constable or some other of its agents.

Sanitary authorities are not confined to the petty sessional court, and whenever they are convinced that an adequate remedy is not likely to be found may plead directly in the high court.

Every sanitary authority is required to secure removal, at proper periods, of house refuse, and to have ash-pits, earth closets, privies, and cesspools emptied and cleansed. Neglect to comply with these provisions after forty-eight hours previous notice renders the sanitary authority liable to a fine not exceeding £20 ($97.33). Authorized agents demanding a fee or gratuity from occupiers for rendering these services make themselves liable to a further penalty not exceeding £1 ($4.87). For the purpose of cleansing, removal of refuse, etc., sanitary authorities must either employ a sufficient number of scavengers of their own or make suitable contracts with outside parties.

All newly constructed or rebuilt houses must be provided with suitable ash-pits, furnished with doors and coverings, and one or more water-closets having convenient water supply and suitable apparatus for flushing. Neglect of this provision entails a fine not exceeding £20 ($97.33). The sanitary authority shall cause notice to be served upon owners or occupiers of dwellings without ash-pits or water-closets, requiring them to provide the same under penalty of a fine not exceeding £5 ($24.33), and a further fine not exceeding 40s. ($9.73) for each day during the continuance of the offense. The sanitary authority, in lieu of the fine, may execute the work at the cost of the house owner. Exceptions are allowed where water-closets have been used in common by inmates of two or more houses without detriment to sanitary interests. In cases where ample sewerage or water supply is not available, a privy or earth closet may be substituted. Appeals from regulations as regards water-closets may be made to the county council, whose decision is final.

The county council makes by-laws in respect to closets of different kinds, ash-pits, cesspools, etc., whether as regards old or new buildings. The enforcement of all such by-laws rests with the local sanitary authority. Entry on premises for the purpose of examining the conditions of water-closets, ash-pits, water supply, and drainage is allowed at any reasonable time of the day after twenty-four hours previous notice to occupiers, or, if the dwelling is unoccupied, to the owner. This notice may be dispensed with in cases of emergency. If everything is found in proper order, the cost of examination is borne by the sanitary authorities, but where defects are disclosed expenses must be paid by the offending party. Any person who does not execute the work in accordance with the by-laws of the county council and sanitary authority, or who rebuilds, without the consent of the latter, closets, ash-pits, or cesspools which have been either forbidden or ordered to

be demolished, or who unlawfully discontinues water supply, or who destroys any water-closet apparatus, pipe, or connecting works so that the destruction creates a nuisance or is injurious or dangerous to health, is liable to a fine not exceeding £10 ($48.67). If delinquency continues beyond fourteen days, after proper notice has been served, the party responsible is liable to a fine not exceeding 20s. ($4.87) for every day during which the offense continues. The sanitary authority possesses the alternative of entering on the premises and doing the work itself at the expense of the offending party. Any person has the right to appeal to the county council from the prescriptions of local sanitary authorities in relation to closets, ash-pits, or cesspools. The penalty for construction or repair of closets and drains in such manner as to be a nuisance or injurious or dangerous to health is a fine not exceeding £20 ($97.33). If the party summoned can prove that the offense was executed by a servant or employee without his knowledge or connivance and after having used his powers to prevent it, he is personally exempt from the fine, but the person actually responsible for the mischief is rendered liable to summary conviction.

The powers of sanitary authorities over drainage are quite ample. Proceedings and penalties in this regard are very similar to those already enumerated.

As has been already noted, an occupied house without a sufficient water supply is held to be a nuisance and may be summarily dealt with under this act. If a dwelling house it is deemed unfit for human habitation. A newly constructed or rebuilt house may not be occupied as a dwelling until sanitary authorities have certified that an ample water supply exists. Upon failure to grant this certificate within a month after written request has been made by the owner of the house the latter may summon the sanitary authority before the petty sessional court and request an order authorizing habitation, but until the order is actually made any owner who either occupies or permits the house to be occupied as a dwelling without having obtained this certificate is liable to a fine not exceeding £10 ($48.67) and a further penalty of not more than £1 ($4.87) for every day of occupation until sufficient supply of water has been provided. The imposition of this fine, however, does not free the owner from the liability of having a closing order served upon him.

Where the water supply has been lawfully cut off from an inhabited dwelling house because of nonpayment of the water rate, or for other reasons, notice must be given by the water company within twenty-four hours to the sanitary authority of the district. A fine of not more than £10 ($48.67) is levied for failure to comply with these provisions. It is the duty of the sanitary authority to take proceedings against any company in default. This applies to every water company which is a trading company supplying water for profit.

Sanitary authorities are obligated to make by-laws the object of which is to secure cleanliness and freedom from pollution. Any well, tank,

or cistern used for storing water, either for drinking or domestic purposes, which is so polluted or likely to be so polluted as to be injurious or dangerous to health, may be closed by order of the petty sessional court on representation of the sanitary authority.

Sanitary authorities are compelled to make and enforce by-laws for fixing the number of occupants in the house, or part thereof let in lodgings, and to make suitable regulation for the separation of the sexes. They must also provide for the registration of houses of this sort, for their inspection, for enforcing drainage and promoting cleanliness and ventilation, and for their cleansing and lime washing at specified times. These provisions refer to houses let in lodgings, but not to common lodging houses. The latter are dealt with by an enactment bearing the date of 1851, and subsequently amended. The occupation of underground rooms not let or occupied for living purposes before the act of 1891 was passed is specifically prohibited except under the following conditions: The rooms must be at least 7 feet high, with 3 feet above the surface of the street. The walls must be constructed with a proper damp course, and, if in contact with the soil, must be effectually secured against dampness therefrom. There must be also outside the room and extending along its entire frontage, 6 inches below the level of the floor, an open paved area at least 4 feet in width. This area, as well as the soil immediately below the room, must be effectually drained. If the room has a hollow floor, the space beneath must be ventilated. Drains passing under the room must be properly constructed of gas-tight pipe, and effectual security must exist against the rising of effluvia or exhalations. There must also be, appertaining to the room, the use of a water-closet and ash-pit. The room itself must have a fireplace, with flue, and be effectually ventilated. The room must also have one or more windows opening directly to the external air with a total area of at least one-tenth of its floor space, and so constructed that one-half at least of each window can be opened, the opening in each case extending to the top of the window. Letting of underground rooms where these provisions are not complied with involves a fine not exceeding £1 ($4.87) per day during the period of occupation. All the foregoing requirements now apply to all underground dwellings which were erected before the passing of the act of 1891. The sanitary authorities may dispense with or modify either absolutely or for a limited time any of these requisites which involve the structural alteration of the building, if they are of the opinion that they can properly do so, having due regard to the fitness of the room for human habitation, to the house accommodation in the district, to the sanitary condition of the inhabitants, and to other circumstances, but any requisite which was required before the passing of this act may not be dispensed with or modified. The reasons, however, for modifications or dispensations must be properly filed with the regular minutes. Appeals from the decisions of the sanitary authority, allow-

ing dispensations or modifications asked for by owners, may be made to the local government board, which is empowered to refuse or grant wholly or partially the demands made. An underground room in which the night is passed is construed to be a dwelling. An underground room is defined to be any room the surface of the floor of which is more than 3 feet below the adjoining ground. An officer of the sanitary authority, or any other person who has reasonable grounds of suspicion, may enter an underground room for purposes of inspection at any hour of the day, and if admission is refused may sue for a warrant before a justice. A second conviction for offenses relating to the occupation of the same underground dwelling within three months permits the petty sessional court to issue a temporary closing order or to empower the sanitary authority permanently to close the dwelling at their own cost.

Sanitary authorities under this act are permitted, with the consent of the local government board, to borrow money for the purpose of providing sanitary conveniences, lavatories, and ash-pits, among other arrangements, for ameliorating the hygienic conditions of their district.

Medical officers of health are required to be appointed by every sanitary authority. The appointee is required to reside in the district in which his functions are exercised or within 1 mile of its boundary. Sanitary authorities must also appoint an adequate number of competent sanitary inspectors. If the local government board is satisfied on complaint of the county council that there has been failure to appoint a sufficient number, it may order their employment.

Every sanitary authority must keep a book in which shall be entered all complaints as to nuisances or infringement of the by laws or provisions of the public health act. The inspector must at once make investigation and report. This complaint book must be open to the inspection of any inhabitant of the district and to any authorized officer of the county council.

One-half the salaries of the medical officers of health and sanitary inspectors are paid by the county council. Medical officers of health can only be removed by the sanitary authority with the consent of the local government board or by the board itself, acting on its own volition. After January 1, 1895, a sanitary inspector can only be appointed after having passed an examination before such body as the local government board may provide, showing that he is competent to perform the duties required of him.

Persons entering upon any premises may be required to produce some written evidence of their right to do so. A person refusing to admit an authorized party is liable to a fine of not more than £5 ($24.33). Like penalties are also provided in cases of willful obstruction to sanitary officers or persons duly employed in execution of the act, for the destruction or defacing of a by-law or notice put up by the authority of the local government board, county council, or sanitary

authority, or for willfully damaging any property belonging to any sanitary authority. Should the occupier of the premises prevent the owner from "obeying or carrying into effect any provision of this act, a petty sessional court shall by order require such occupier to permit the execution of any works which appear to the court necessary for the purpose of obeying or carrying into effect such provision of this act; and if within twenty-four hours after service he fails to comply, he shall be liable to a fine not exceeding £5 ($24.33) for every day of such noncompliance." Should the occupier decline to disclose, or willfully misstate the name and address of the owner, a fine not exceeding £5 ($24.33) may be imposed. The fines required for offenses against the act are applied by sanitary authorities to their expenses, except penalties to which they have themselves submitted. These go to the county council. The latter body may not proceed against the sanitary authority except with the sanction of the local government board. Costs or expenses against an owner may be recovered from the occupier of the premises, but the latter may deduct them from his rent. The occupier may not be charged with a greater sum than the amount of rent due, or which after demand from him of the costs and expenses, and notice not to pay any rent without first deducting the same, becomes payable by him. The county council, sanitary authorities, or other officers are freed from all personal responsibility arising from the performance of legal duties. An appeal may be had from the courts of summary jurisdiction to the courts of quarter sessions. Service of any notice, order, or other paper is deemed to have been made upon delivery at the usual or last known residence in England of the person to whom it is addressed, or where addressed to the owner or occupier of premises, to some person on the premises, or, when no one lives there, by posting upon a conspicuous part of the house. Service may also be made through the mail.

Some slight exceptions are made in the application of this act to the city of London proper; the most important is the denial of an appeal to the county council. The county council has no authority under this act to proceed in case of default of the commissioners of sewers. The night population of the city is exceedingly small, so that this omission is not a matter of great importance. Respect for the prerogatives of the ancient corporation f· rnishes, doubtless, the dominating motive for the exceptions granted.

The public health (London) act of 1891 marks an important increase of authority over matters pertaining to health and housing by the London county council. The fact that two assistant medical officers of health have been appointed since 1891 shows that the council is growing more and more the center of sanitary administration for London. Progress in the future will be in the direction of still further consolidation. Already, under the local government act of 1888, the council pays half the salaries of nearly one-half of the district medical officers

of health, and a constantly increasing number of sanitary inspectors come within the same provisions of that act, so that in time the council will be paying a moiety of the salaries of all the medical officers and sanitary inspectors in the county. The direction which efforts are taking furnishes good ground for satisfaction. Sanitary administration should, above all things, be centralized. Decentralization, *i. e.*, splitting up municipalities into so many local divisions, is not merely fatal to harmonious action, but offers a menace to the health of the community.

Ten vestries and eight district boards have reelected their medical officers of health under the public health act of 1891. The county council pays a moiety of the salaries of these functionaries.

From April 1, 1892, to March 31, 1893, 761 complaints were made to the county council in reference to insanitary conditions or to failures in sanitary administration. The council, in such matters, adopts the plan of referring the persons complaining to the proper sanitary authority. If it appears that the complaint has already been made there without result, the council itself sends a copy to the sanitary authority with the request that prompt attention be given. Later, inspection is made to verify the complaint. In this way the affair is kept under observation until matters have been fully righted. The guardianship of the council has had a very wholesome effect, stimulating the local authorities to prompt action. In only two cases did the public health and housing committee feel it necessary to report to the full council that there had been undue delay. In only one instance was it necessary to call the attention of the local government board to the failure of a sanitary authority to properly administer the act of 1891. The most important feature of the public health act of 1891 is that medical officers of health can not be discharged by local sanitary authorities without the consent of the local government board. This means that they are made much more independent, not being liable to discharge should they be considered by interested members of the vestry as too zealous in the discharge of their duties. Such independence should be aimed at everywhere. Not broader local authority is needed, but a more independent, impartial, and untrammeled administration.

The London county council, in June, 1893, formulated its requirements in regard to water-closets and drainage. They stipulate that one side of the water-closet, at least, must abut on a space of in no case less than 100 square feet. No closet may be approached directly from a living room or a store room for food. A window of not less than 2 square feet shall open directly to the external air. There must be proper ventilation by air-bricks, shafts, or otherwise. The flushing cistern is to be separate and distinct from any cistern used for drinking purposes. The receptacle must be of nonabsorbent material, and its quality, like that of the apparatus, good. An efficient siphon trap is the only kind permitted.

FRANCE.

The law of April 13, 1850, upon unhealthy dwellings, which contains the principal sanitary regulations in relation to housing, provides that, in every community where the municipal council shall have declared it necessary at a special meeting, there will be named a commission charged with the duty of ascertaining and indicating measures indispensable for the sanitation of dwellings and accessories. Unhealthy dwellings are those in such a condition as to be dangerous to the life or health of their occupants.

The commissions are composed of from five to nine members each. Each must include a physician, and an architect or builder, as well as a member of the public relief bureau and of the council of experts (*conseil de prud'hommes*), where these institutions exist. The mayor is the president. One-third of the commission is renewed every two years, but members going out are reeligible indefinitely. At Paris this body is composed of thirty members. The commission visit places which have been pointed out as unhealthy. They make a report of the causes and conditions of unhealthfulness as well as of the remedial means required. They designate, especially, those dwellings which are not susceptible of being made healthy. The reports of the commission are sent to the office of the mayor, and a month is allowed interested parties in which to appear and take cognizance. At the expiration of this time the plans and answers are submitted to the municipal council, who determine—

1. The nature of the improvements and the place and time where they are to be fully or partially executed.

2. Dwellings which are not susceptible of being made healthy.

Interested parties have recourse against decisions. During appeal the work must be suspended. If it is found that the responsible party is the proprietor or usufructuary, the municipal authority enjoins him to execute the necessary work within a defined time. If this is not done and the dwellings continue to be occupied by the third party, the proprietor or usufructuary is liable for a fine of 16 to 100 francs ($3.09 to $19.30). If the work is not executed within a year and the occupancy of the third party continues, the fine may be made as high as double the cost of the necessary work. If it is found that the dwelling is not susceptible of being put in sanitary condition, the municipal authority may, within a period of time which it shall prescribe, provisionally close the dwelling to habitation. Permanent closure can only be decreed by the council of the prefecture, and appeal may be had to the council of state. The penalty for neglect is practically the same as in previous instances, namely, from 16 to 100 francs ($3.09 to $19.30), and in case of a second offense during the year a fine equal to double the rental value of the interdicted property. An occupant dispossessed is debarred from claiming damages for annulment of lease. Whenever unhealthfulness is the result of external and permanent causes which

can only be rectified by demolition, the commune is authorized to expropriate the property in accordance with the law of May 3, 1841, and to sell whatever part is not needed for new buildings. The inconveniences of this law are set forth in four paragraphs a little further on. Being optional, it is not surprising to find that only 8 out of over 36,000 of the administrative subdivisions of France have taken advantage of it, and organized commissions on unhealthy dwellings. M. Jourdan has prepared an interesting table of all cases dealt with by the Paris commission from 1850 to 1891. The total represents 82,433, of which 37,099 were settled, 26,287 were submitted to the municipal council, 1,316 went before the council of the prefecture, and 3,781 were cited before the correctional court.

Comparatively few of the French cities have taken advantage of the option offered them of appointing commissions on unhealthy dwellings. It is easy to explain this fact since the choice rests with municipal councils. The elect of universal suffrage are not overready to take part in any movement which may bring them in conflict with the interests of their influential constituents. Furthermore, the posts being nonremunerative there is difficulty in finding men with sufficient time on their hands, or men far enough removed from extraneous influences, who are competent to undertake the duties assigned them. It is said by good authority that the law of 1850, instead of responding to the aim which its authors had in view, has acted as a hindrance to the improvement of dwellings.

The enactment presents the following principal imperfections:

1. An option is left to the municipal councils to create or not, as they may wish, commissions to look after unhealthy dwellings.

2. It is practically impossible either to remedy causes of existing unhealthfulness in places which do not serve as lodgings, properly called, but in which men pass the day and even the night at work, such as offices, stores, etc., or to ameliorate unhealthy conditions arising from the neglect of tenants.

3. Delay in procedure is so great that it is difficult, within a space of time earlier than from six months to a year, to dispose of cases even where no opposition is offered. A delay of three or four years, sometimes even more, is caused by proprietors raising opposition.

4. The means for coercing recalcitrant proprietors are insufficient, the commune not being able to compel them to make the improvements demanded, or in default of this to execute them themselves.

The fourth point is strikingly illustrated by a case which it was stated represented about the average time where proprietors chose to oppose a sanitary improvement demanded. A complaint of dampness in a particular dwelling was made to the prefecture of the Seine, Paris, August 24, 1886. In compliance with the prescription of the law, there followed twenty-two different communications typifying the various steps of procedure, the last bearing the date of June 2, 1891, being a

transcript of judgment showing that the proprietor had been fined 25 francs ($4.83). Thus nearly five years elapsed from the time the first complaint was filed until the affair was regulated in this fashion. It must be remembered that this is not by any means an exceptional case. In one notable instance thirteen years were required before elementary sanitary conditions could be realized on the property of a notoriously recalcitrant proprietor. One great feature of delay is the necessity for the municipal council to take action. Certain members of that body at Paris in the past have been notorious for smothering cases of this kind; indeed, it is related on the best authority that one of the local Solons boasted that, during the years he sat as a representative, not a single case coming from his quarter had been acted upon. A sanitary law under which a large city has to be governed, and which permits delays of this sort, is certainly in need of reformation, and yet the thorough study and report made by Dr. A. J. Martin, Dr. O. du Mesnil, and M. Jourdan indicate that progress toward reform is inexplicably slow.

The decree of December 18, 1848, regulates the creation of councils of public hygiene and salubrity. These are designated for the *arrondissement*, and consist of from seven to fifteen members. They are appointed by the prefect and serve for four years, half retiring biennially. Their functions relate particularly to sewers and to manufacturing establishments. Household sanitation does not come within their province in those cities where commissions on unhealthy dwellings exist.

There is in the chief town of each prefecture a departmental council of public hygiene and salubrity, consisting of from seven to fifteen members, appointed by the prefect for four years. Both of these bodies must meet at least once every three months and are convened by the prefect or the mayor, as the case may be. Their advice is asked in relation to the sanitation of houses or of localities, and all other questions directly related to public health. The departmental hygienic council gives advice to the prefect in all matters relating to public hygiene, where more than one *arrondissement* or the department as a whole is interested.

The consulting committee on public hygiene has control over all the work of the local councils, and elucidates and instructs them in all questions relating to sanitation. It is composed of thirty-two members, of which eleven are *ex officio*, namely, the director of consular and commercial matters under the minister of foreign affairs; the president of the council of military health; the inspector-general, president of the council of marine health; the director-general of customs; the directors of public assistance of the departmental and communal administrations under the minister of the interior; the director of the general administration of public assistance; the director of internal commerce; the inspector-general of the sanitary service; the inspector-general of

veterinary schools; and the architect inspector of external service in the ministry of commerce. The ministry nominates directly the other twenty-one members, eight of whom, at least, must be physicians. The committee meets as often as once weekly. Its duties consist of studying and examining all questions referred to it by the ministry, especially those concerning the marine sanitary police and quarantine services, measures required to afford protection from and to combat epidemics, to ameliorate the hygienic surroundings of manufacturing and agricultural populations, to regulate vaccination, the water supply system of mineral water establishments, the institution and organization of local health commissions, the salubrity of lodgings, factories, workshops, and technical questions relating to the management of municipal and departmental laboratories.

BELGIUM.

The highest sanitary body in Belgium is the superior council of hygiene. Its duties, however, are only consultative. It has no power to enforce regulations. A medical commission exists for each province, but this also is without any executive authority. Each commune has its sanitary council or committee on salubrity, which is expected to look after the sanitary condition of houses, etc., and to make appropriate recommendations to the burgomaster. As regards household hygiene, the burgomaster has practically absolute authority. Where the town has 2,000 inhabitants and more, he is authorized to prohibit the habitation of houses that are in bad condition from defects of construction or uncleanliness, want of light, improper drainage, or from any other causes which may compromise public health. Before issuing the closing order the burgomaster must request a report of the condition of these places, and his decree sets forth his reasons in order that they may be brought to the knowledge of the proprietors and the occupants. One month is allowed for evacuation of the premises after date of notification. At the expiration of this time a poster, containing the words "House interdicted on account of unhealthfulness," is placed on the front of the building. Wherever proprietors commence making repairs and are unable to execute them within thirty days further delay is accorded. The burgomaster derives his authority by virtue of a decision of the court of appeals in 1876. In his quality as chief of police he is charged with the execution of all regulations relating to security and public health. The burgomaster and communal sanitary authorities, however, are not as a rule very active. It can be said that the former official has never abused the absolute power which the law gives him.

The committees of patronage, which were called into existence by the housing enactment of 1889, are meant to stimulate the communal authorities to a stricter observance of their duties. They have no executive powers, however, nor can they enter any premises without

the consent of the occupants. By bringing pressure to bear upon the communal commissions of salubrity and upon the burgomaster, they are able to accomplish some good.

In many leading Belgian towns certain prescriptions, borrowed from the French law of 1848, have found their place in municipal policy. Their repetition would be superfluous.

BRUSSELS.

The health authority of the Belgian capital is the bureau of hygiene. It was founded in 1874 and was one of the first institutions of the kind created on the continent of Europe. Among its other functions, it examines plans of buildings from the hygienic standpoint, deals with nuisances, and undertakes all technical and administrative work in relation to public health.

Overcrowding is considered a nuisance and is dealt with accordingly. Every room with a cubic air capacity of less than 16 meters (565 cubic feet) per person is considered by sanitary regulation as affording too little space. The desirable minimum for the height of ceilings is prescribed as 2.80 meters (9.2 feet).

GERMANY.

Sanitary administration in Prussia, as in all German states, is in the hands of the police authorities. The latter are assisted by the municipal physician, and in cities of over 5,000 inhabitants, by the so-called sanitary commission, which is composed of representatives of the city government, physicians, and the chief of local police, who is the presiding officer. The duties of this commission are advisory. Commissions have not been everywhere organized. Their calling together depends upon the chief of police, and they have no power of initiation. A real medical officer of health, in the American or English acceptation of the term, does not seem to exist in Germany. Concentration of authority in the hands of the police leads to personal rather than technical oversight. In Berlin if a house proprietor finds any of his tenants maintaining dwellings in a filthy state he is bound to warn them to clean up, and if they fail to comply, to turn them out without any further ceremony. Should the landlord neglect his duty, an officer of the sanitary department will make a visit upon complaint of neighbors and, if he finds the house filthy, clean it at the landlord's expense. This method of dealing with persons of uncleanly habits is pretty effectual in preventing the upgrowth of slums.

CHAPTER III.

EXPROPRIATION FOR SANITARY PURPOSES.

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When houses or neighborhoods become irremediably bad, the only logical thing to do is to wipe them out of existence. It is true this form of procedure is costly, but late awakenings are always expensive. The supreme necessity of safeguarding public health is a sufficient motive for action, but the welfare of individual dwellers is also happily subserved. The right of expropriation is a weapon of last resort, and perhaps alone can efficiently check the unscrupulous rapacity which allows property to degenerate into an incurably unhealthy state.

England, in the housing of the working classes act of 1890, has furnished the world with a model of procedure which ought to find imitation everywhere. Its main provisions appear in the subjoined summary.

GREAT BRITAIN.

The public health acts, both for the whole of England and for the city of London, deal with the sanitation of individual houses. Neither of them contain provisions for dealing with insanitary areas. The condition of houses in certain districts becomes sometimes so hopelessly bad that there is no remedy except to tear down the dwellings and build anew. In 1868 a measure was passed which, with subsequent amendments in 1879 and 1882, is known as the Torrens act, making provision for the improvement or demolition of houses inhabited by working people and for the building of improved dwellings. The sphere of operation included London and all the urban sanitary districts of England. The principle of expropriation for purposes of public utility was admitted, but individual tenements or small groups of houses were all that were included under the acts.

The first laws to deal with comprehensive sanitary areas were a series known as the artisans' dwellings improvement acts, passed in 1875, 1879, and 1882. These laws, generally known as the Cross acts, from the name of their framer, applied to London and English urban sanitary districts having a population of 25,000 or more. Where areas had become insanitary, either from irremediable structural defects in the dwellings themselves, or where houses were so badly situated with reference to one another that it was impossible to introduce proper sanitary improvements, these laws permitted compulsory purchase by the local authority of the property affected and the inauguration of proper reconstruction.

HOUSING OF THE WORKING CLASSES ACT OF 1890.

In 1890 all previous enactments were repealed and the comprehensive housing of the working classes act substituted. It was made general in its application to other parts of the United Kingdom as well as England and Wales.

The first part of this law relates to unhealthy areas, and is limited in its application to cities and towns. Rural sanitary districts are excepted. It provides that whenever an official representation is made to the local sanitary authority that "within a certain area in the district of such authority either any houses, courts, or alleys are unfit for human habitation, or the narrowness, closeness, and bad arrangement, or the bad condition of the streets and houses or groups of houses within such area, or the want of light, air, ventilation, or proper conveniences, or any other sanitary defects, or one or more of such causes, are dangerous or injurious to the health of the inhabitants either of the buildings in the said area or of the neighboring buildings; and that the evils connected with such houses, courts, or alleys, and the sanitary defects in such area can not be effectually remedied otherwise than by an improvement scheme for the rearrangement and reconstruction of the streets and houses within such area, or of some of such streets or houses, the local authority shall take such representation into their consideration, and if satisfied of the truth thereof, and of the sufficiency of their resources, shall pass a resolution to the effect that such area is an unhealthy area, and that an improvement scheme ought to be made in respect of such area, and after passing such resolution they shall forthwith proceed to make a scheme for the improvement of such area." The official representation must be made by the medical officer of health, who makes his inspection upon the complaint of two justices of the peace or twelve taxpayers. Should he fail in his duty, the complainants may appeal to the local government board, or if the area is in London, to the home office. The local authorities, in connection with their scheme, must submit maps, particulars, and estimates. They may exclude any portion of the area or include contiguous territory, as their judgment may dictate. Proper sanitary arrangements must be provided, and also (and this is a very important fact to note) accommodations for the working classes displaced by the proposed plan. The scheme must distinguish the lands proposed to be taken compulsorily. Compulsory purchase need not be resorted to if the owner of the freehold confers with the local authority and makes the required ameliorations under the superintendence and control of the local authority. The scheme, when formulated, is publicly advertised, and notice is given to owners and occupiers. It is then laid before the local government board or home office, as the case may be, whose duty it is to make a local inquiry. If approval is given, the appropriate organ of government submits the scheme to Parliament for confirmation by special enactments. If there is opposition, reference is made to a committee of either

House of Parliament and costs are awarded there against promoters or opposers according as the opposition is considered to have been justified or not. Wherever the local authorities decline to act upon an official representation they must file their reasons with the confirming body, who will immediately direct the holding of an investigation.

If the scheme relates to London, a statement must be made of the provisions for accommodating as many persons of the working classes as may be displaced either within the area or immediately outside, unless the confirming power shall be satisfied that equally convenient accommodation is offered elsewhere. Should special circumstances exist, only one-half of the persons displaced need be provided for. In any other city outside of London the local government board may require that displaced parties, working people, may be accommodated either within or without the area under consideration.

It is important to note that special care is taken by this law of the housing of working people. All undue hardship accompanying their displacement is effectually guarded against. As working people can not be displaced without more or less inconvenience, cordial recognition is given to the necessity of their being properly cared for within the district which, from reasons of contiguity to employment or special facilities of access, they have chosen to make their residence. In this respect the act is in a measure unique. These provisions furnish also the explanation of the fact that some English cities in undertaking the improvement of insanitary areas have built and rented house accommodations for working people. These requirements have been followed, not for the purpose of engaging in socialistic schemes, but with the idea of recognizing the justice of the workingman's necessity of being near his place of toil. In almost every instance, if not in every case, steps have first been taken to induce private parties to purchase the land and build suitable dwellings. When these efforts have failed, after a threefold attempt has been made, as in London, the municipalities themselves intervene to fulfill the mandatory provisions of the law. Individuals and building companies have usually asserted that the requirements as to new buildings were such as to preclude the possibility of proper financial return upon the investment. In many instances at least the land has been offered at a figure from which the cost of demolition has been eliminated. This practice, which seems entirely equitable, is based on the view that the whole cost of improvement should not appear in the rent charged to future tenants. The expropriation and demolition of insanitary areas entail benefit to the entire community, and it is but fair that the community as a whole should bear a moderate portion of the cost.

A previous enactment covers a class of cases where displacement of working people is caused by other than sanitary reasons. Pressure upon metropolitan centers particularly, for the construction of railways or the erection of terminal facilities, has often been fraught with unfavorable residential consequences. Hence the responsible party was

made liable for providing within a specified time for a portion of the dispossessed inhabitants. Solicitude of this sort is both wise and salutary.

After the improvement scheme has been confirmed, the local authorities are empowered to sell or lease the land acquired to any person who undertakes to carry out the stipulations enjoined. Local authorities themselves may only engage in rebuilding with the sanction of the local government board. The price paid for land must be a fair market value as assessed under the land clauses acts, no allowance being made because the purchase is compulsory. Where nuisances have existed, deduction is made for the sum it would have been necessary to spend for abatement or to put the buildings into repair. Where the premises are unfit for human habitation, the compensation covers simply the value of the land and materials. The lands required are to be purchased either by mutual agreement or upon arbitration. Lands owned by the local authority may be used for providing accommodations to displaced workmen, or if an insufficiency of accommodation of this sort exists, suitable sites may be purchased. Expenses of improvement schemes are defrayed either from local taxation or from special loans. There exists in England a body known as the public works loan commission, and this is the source from which borrowed money may be obtained upon recommendation of the confirming authority. The period of repayment is fixed at fifty years as a maximum. Three and one-half per cent is the interest charged upon money borrowed from the public works loan commissioners.

Part II of the act of 1890 deals with unhealthy dwelling houses. The district medical officer of health is enjoined to report to the local sanitary authority any places which appear to be in so bad a condition as to be unfit for habitation. The initiative may also be taken by any four householders living in or near the same street where the property complained of is situated. Should the local sanitary authority allow three months to pass without action the petitioners may bring the matter to the attention of the local government board. Local authorities must cause from time to time an inspection of their district to be made in order to see if there is any dwelling house unfit for habitation, and where such is found they must take proceedings for closing against the owner or occupier. The magistrate in such cases is empowered to make a closing order and impose a fine not exceeding £20 ($97.33). Where such an order has been issued a delay of not less than seven days is accorded to the tenant in which to move out at the expense of the owner. Whenever proper diligence is not exercised to put a closed house in a habitable state the local authority may determine to demolish it. Due notice must be served upon the owner so that he shall have an opportunity of appearing or being heard. If the owner does not undertake the task of rendering the premises habitable himself, and if after a hearing it is still thought advisable to order demolition, the local authorities may proceed to act. An appeal against an order of the local authority is allowed to the court of quarter sessions.

Where the owner decides to undertake the improvements himself he is entitled to receive what is known as a charging order; that is, an annuity of 6 per cent on the amount expended, which is allowed to run for thirty years. Where a building exists which, itself, while quite fit for habitation, is so situated that it stops ventilation or otherwise makes or conduces to make other buildings to be in a condition unfit for habitation, or dangerous or injurious to health, or prevents the correction of nuisances, the medical officer of health makes report to the local sanitary authority, who, after inquiry and giving hearing to the owner, decides on the expediency of tearing it down. Should the affirmative view be taken an appeal is allowed the owner to the court of quarter sessions. If the court of quarter sessions decides against the appeal the owner may, if he chooses, within a month of the day of notice, retain the land, receiving compensation for the building. If the owner does not so elect the local authorities then proceed to acquire the property either by purchase or condemnation and tear down the building. Where the land is retained no obstructive or dangerous building can be erected. Local authorities may use land acquired in this manner for purposes of parks or highways, they may dispose of it for the erection of dwellings for the working classes, they may exchange it, or they may build upon it themselves. All claims for compensation in cases of disagreement are settled by arbitration, as with the improvement of insanitary areas.

Local sanitary authorities are obliged to make a report every year to the local government board of what has been done with a view of carrying into effect the purposes of this part of the act. County councils have the authority, where vestry or district boards in the administrative county of London, the local board of Woolwich, or rural sanitary authorities fail to perform their duties in respect to this part of the act, to execute the necessary works themselves and charge the expenses incurred to the appropriate local bodies. These sums are considered simple contract debts from the district bodies to the county council.

Part III of the enactment of 1890 relates to providing lodging houses for working people, and is made applicable both to urban and rural districts. The expression lodging houses includes here separate houses or cottages, whether containing one or several tenements. In the rural districts the consent of the county council is required before any plan can be carried into execution. The county council must first cause an inquiry to be made as to whether the accommodation is absolutely necessary and whether there is no likelihood of it being otherwise provided. Acquisition of land may be made under the public health act of 1875, and buildings may be erected thereon or existing constructions altered to become lodgings for working people. Local authorities may sell any land vested in them and use the proceeds, or exchange any such lands for lands better adapted to the purposes of this part of the act, with the consent of the local government board or the county council. They

may also purchase or lease existing lodging houses. The management and control of all lodging houses, either established or acquired by local authorities, must be vested in them. Receiving poor relief, either personally or through one's wife or husband, except on account of accident or temporary illness, constitutes a bar to further tenancy. The charges are fixed and the by-laws made by the local authorities. Expenses incurred by a local authority in the execution of this part of this act are borne in London by the dwelling house improvement fund; in other urban communities as part of the general expenses in the execution of the public health acts; and in rural districts as a special obligation incurred in executing the public health acts. If it is found that any lodging houses, after seven years, dating from their acquisition or erection, are not necessary or are too expensive, they may be sold. Any railway company, or dock or harbor company, or any other company, society, or association established for trading or manufacturing purposes and employing persons of the working class, is granted the authority to build houses for such persons in their employment. In order to encourage enterprise of this sort the public works loan commissioners are authorized to lend money, repayable within a period of forty years, to companies or to private owners of land, not exceeding one-half of the value of the estate. The rate of interest is fixed by the commissioners of the treasury, but may not be less than 3½ per cent. Lodging houses must at all times be open to the inspection of the local authorities or their agents. This part of the act has to be adopted by the sanitary authorities before it comes in force.

Part IV reveals certain modifications in the application of the act. For instance, where an unhealthy area is found in London which does not include more than ten houses the county council is not authorized to take proceedings based on the official representation, but it must direct its medical officer of health to present the case to the appropriate local authority under Part II of this enactment.

Any sale, lease, or exchange of land for the purpose of erecting dwellings for working people may be made at the best price obtainable for this purpose. Even if a higher price is offered for another purpose, it must not be accepted. Wherever a local authority sells land acquired for any of the purposes of the act, the proceeds may be applied for any purpose, including repayment of borrowed money, for which capital money may be applied, and which is approved by the local government board. Members of a local authority or county council in any way interested in property to be dealt with in any manner under the provisions of the act of 1890 are disqualified from voting with respect to the property in question.

The broad principles of the act apply to Scotland and Ireland. The modifications introduced relate chiefly to the procedure and designation of officials charged with the execution.

The housing of the working classes act of 1890 is not an original

piece of legislation. It contains few, if any, principles which were not already incorporated in English law. It represents a consolidation of the numerous special enactments previously in existence, and so, naturally, provides in its closing clauses for their repeal. There are slight simplifications of procedure, but its chief characteristic is fixing the responsibility upon owners for the sanitary condition of their property. Wherever a single insanitary house is found the owner is allowed the initiative in providing necessary ameliorations. Should he fail to satisfy the sanitary authorities they themselves undertake the work in the manner previously described. Single houses, small groups, and large areas are all provided for. Checks against awarding exorbitant damages in cases of expropriation have wisely been introduced.

One of the great merits of this law is that it provides for the acquisition of slum property without having to pay unreasonable sums for it. Inability to do this greatly hampered the operation of the previous artisans' and laborers' dwellings acts. A statement submitted by the metropolitan board of works to the secretary of state for the home department in 1879 gives an instance of inordinate compensation. It mentions a typical case which occurred in the Great Wild street area, where the property was in such a condition as to menace public health. If this fact had been given due consideration, as it would be under the law of 1890, the property would have been valued at £500 ($2,433.25), while it was actually purchased by arbitration for £3,500 ($17,032.75). Taxpayers were thus saddled with heavy charges for the benefit of persons whose neglect required the interposition of public authority, and with the further effect that owners of houses occupied by poor people were encouraged to be careless of sanitary conditions. Under these previous enactments the actual experience was that almost as much had to be paid for the worst class of property as where no sanitary necessity existed for destruction.

The provision of English law requiring rehousing in the neighborhood of expropriated sites is an eminently just and wholly admirable requirement.

Conditions as to rentals charged may be incorporated, otherwise the people are at the mercy of speculative builders. Furthermore, the community will find that, if buildings are built by speculative builders upon land expropriated for sanitary purposes by the city, the community has not been a gainer in the end, for the reason that surrounding localities become overcrowded, and very soon another pest spot is created even worse than the one which was displaced. It is seriously open to question whether or not the municipality must not, in the interests of justice, here intervene. Certainly it must restrict rents and guarantee sanitary features.

The municipality is justified in building on ground thus acquired, because the benefits of the expropriation are preserved to the taxpayers, and evils incident to overcrowding and the upgrowth of slums are prevented.

The act of 1890 is by no means socialistic in character, as the permission to municipalities to build houses for working people and operate them on their own account would seem at first glance to indicate. The consent of the local government board is an essential preliminary to this form of activity. Efforts to dispose of the land to private parties or to building companies must first, in every instance, be made.

This law is a sanitary measure rather than an enactment to encourage the erection of houses for working people. The only provision for the latter is that permitting the loan of money at a low rate of interest, upon security which is unquestionable, to trading and manufacturing companies employing persons of the working class. In this respect it differs materially in general characteristics from legislation on the continent, particularly in Belgium. The law is distinctly a measure of protection and only incidentally one of social advance. The moral to be derived from its consideration is that an expensive awakening must come sooner or later to all communities where fundamental sanitary requisites in dwelling construction have been neglected. This legislation gives evidence that the interests of property will not henceforth be considered paramount to those of human life.

OBJECTIONS TO EXPROPRIATION.

The greatest objection to the expropriation of insanitary property is the cost. A city, in clearing away insanitary dwellings, must be prepared to sink the difference between the price of the land and the buildings torn down and the commercial value of the land. If this is not done there is little chance of making a scheme pay. The cost of providing the site of Victoria Square Artisans' Dwellings, Liverpool, was £3 ($14.60) a square yard. The corporation estimated the commercial value of it at £1 2s. 6d. ($5.47) a square yard. The justification offered for this loss on the part of the corporation is that it would be unfair to make the workingman pay for a sanitary improvement in which all alike participated. The cost of expropriation has been largely influenced by the procedure followed. Under the Torrens and Cross acts it was exceedingly expensive, and undue advantages were permitted to landlords. The housing of the working classes act of 1890 to a large extent remedies these defects.

In estimating the cost of any improvement scheme, account should always be taken of the fact that the first cost will ultimately be reduced by the taxes upon the increased values of property on expropriated territory and in the immediate neighborhood.

Clearances for sanitary purposes are too infrequent. Is it not far better to turn people out, even with great inconvenience to themselves, than to let them stay in old buildings and fall into bad health and unfortunate habits? That this primarily affects the value of individuals to the community as a whole is evident. Undoubtedly injustice

as well as inconvenience may be wrought to inhabitants of insanitary areas if tearing down is done injudiciously or too rapidly without some provision being made for accommodation in localities thought by working people to be desirable for residence. Advance in rents is almost sure to follow in such cases.

Expropriation is more often necessary where the ground-rent system prevails. The reason is, that owners of houses upon which the lease has nearly expired have no incentive to keep them in good repair. They consequently become during the latter years of the lease a menace to health. It is for this reason more important that complete powers of expropriation should be enjoyed by European than by American municipalities.

What becomes of the dispossessed? The effects of expropriation in producing overcrowding in side streets have been very greatly exaggerated. A little care, however, must be exercised. It is better to proceed with any large undertaking by degrees rather than to attempt everything at once. The London county council in 1892 having to provide for 732 tenants displaced from a portion of the Boundary street area was able to show that 412 found rooms within a quarter of a mile, 226 within half a mile, 57 within a mile, and only 37 at a greater distance. A register of vacant tenements within a half mile was kept, and displaced tenants were referred to proper localities.

An inquiry in regard to people displaced from certain quarters was made not long ago in Brussels. Two hundred and fifty-five tenants, 235 of whom were working people, were dispossessed because of house demolition. Eighty-seven found accommodation within 300 meters (328 yards) of the expropriated quarter, 108 from 600 to 800 meters (656 to 875 yards) distant, 46 in different quarters of the city, 10 in the outskirts of Brussels, and 4 in suburban communities. The remarkable tendency to find accommodation near old quarters is thus exemplified. Seventy-six per cent were rehoused within 800 meters (875 yards) of their original home.

It would be futile to deny that large expropriations have resulted in overcrowding side streets in the vicinity. This fact is incontestably proved by the experience of Paris in piercing the city with her magnificent boulevards and in the enormous displacements which took place in London during the construction of the Victoria embankment and the new law courts. There are other instances, however, to show that comparatively large works may be conducted without this unfortunate feature where sufficient care is taken, and work proceeds more slowly.

In Paris there is no compulsory provision for housing displaced people as in London; consequently there has been tremendous overcrowding of side streets along the great boulevards which were run through old and insanitary quarters.

SOME RESULTS OF EXPROPRIATION.

Expropriations for sanitary purposes have been carried on in nearly all the large cities of Great Britain. A brief reference is made to a few of the more important, while special attention is given to the experience of Glasgow as being thoroughly representative.

EDINBURGH.

In Edinburgh a trust was created under the improvement act of 1867. Up to 1890 the actual expenditure, including purchase of properties, interest, and cost of administration had been £560,000 ($2,725,240); £380,000 ($1,849,270) had been provided out of the rates; the balance came from money received for land sold. The trust deals with extraordinary sanitary work. The ordinary sanitary work in relation to houses is carried out under the Edinburgh public health by-laws amendment act of 1891.

From 1885 to 1890 over 2,000 dwellings were condemned as unfit for human habitation. A little over one-half of these were permanently closed, while the remainder were altered, and in many cases turned into stores or warehouses, or pulled down by the owners for the purpose of erecting new ones.

Occasionally condemned houses have been purchased by the corporation and pulled down in order to give freer air to crowded neighborhoods. Such houses, instead of being purchased at prices favorable to the owners, have been bought by the corporation as uninhabitable buildings. Not a little of the expropriated insanitary property in Edinburgh has been turned into small open spaces. These can by no means be called parks or squares, as they cover simply the space formerly occupied by one, two, or three houses. The spaces are paved over, supplied with light gymnastic apparatus, and used as recreation grounds for children. Such thoughtful provision for the youth of tenement districts is a splendid boon. Small areas of this kind serve ethical as well as hygienic ends.

DUNDEE.

In Dundee the city has, at different times, undertaken to clear out slums by buying up some of the worst property, widening the streets, and putting up stores and dwellings for the better class of people. In this way some of the dirtiest streets have been transformed into the best business thoroughfares. This work has been attended by a considerable loss to the taxpayers, and no provision was made for housing the poorer classes who were dispossessed. About £506,235 ($2,463,592.63) were expended in the purchase of these properties, laying out of streets, etc., under the local improvement act of 1871, and about £353,065 ($1,718,190.82) were realized, showing a net deficiency of £153,170 ($745,401.81). The effect of this expropriation is shown

upon the death rate, which varied for the preceding ten years between 26.08 and 36.95 per 1,000, and which during the ten years from 1881 to 1891 varied from 18.3 to 23.91 per 1,000.

NEWCASTLE-UPON-TYNE.

In 1865 the corporation of Newcastle-upon-Tyne obtained rather broad powers for improving the sanitary condition of the city. After the passage of the general act of 1875 demolition of several insanitary areas, entailing an expenditure of £63,800 ($310,482.70), took place. At the present time the act of 1890 is being utilized to close up some of the worst property still remaining. The enlightened and aggressive policy which has been inaugurated will soon place the great coal center of the north in line with the best of English cities.

LIVERPOOL.

Under the provisions of the Liverpool sanitary amendment act of 1864 and other local acts about 3,700 houses have been reported to the council by the medical officer of health with a view to their demolition. These houses have either been leveled and their sites left as open spaces, or habitations for working people, built in conformity to existing regulations, have been erected. The expenditure incurred by the corporation in acquiring insanitary property, which has principally been confined to courts, back-to-back houses, etc., has been £226,000 ($1,099,829). This is in addition to the extensive expropriation of the unhealthy area known as Nash Grove, part of which was used for Victoria Square and the remainder for dwellings erected by the corporation.

BIRMINGHAM.

Immediately after the passing of the artisans' and laborers' dwellings improvement act of 1875 steps were taken at Birmingham to put it into operation. The area acquired was 218,099 square yards. The total capital expenditure up to March 31, 1891, amounted to £1,666,398 7s. 11d. ($8,109,527.79). Deducting £115,588 16s. 7d. ($562,513.04) paid to the sinking fund out of the income, the actual liability was £1,550,809 11s. 4d. ($7,547,014.75). Up to the end of the fiscal year 1890, £66,607 ($324,142.97) had been received from the rates, and it is estimated that the scheme will entail a charge of £20,000 ($97,330) per annum upon the taxpayers until all loans are paid off at the expiration of sixty years from the date of borrowing. Of the property acquired under this act, 48,076 square yards were let on building leases at the annual rental of £36,021 10s. 3d. ($175,298.69). The remaining property left standing produced about £20,000 ($97,330) per annum. One thousand eight hundred and sixty-seven houses and 814 other buildings were acquired. Eight hundred and ninety houses and 353 other buildings were demol-

ished, while the remainder were repaired and put into a sanitary condition. Twenty-two artisans' dwellings were constructed, and a site for 82 additional dwellings of this class was then being utilized.

The cost of the completed dwellings was about £4,000 ($19,466), and they are let at a rental of 5s. 6d. ($1.34) each per week.

GLASGOW.

In 1846 the municipal and police governments of Glasgow were consolidated. Shortly afterwards the city council determined to spend about £30,000 ($145,995) in acquiring property in the wynds and closes abutting on High street, in the Saltmarket, and in Gorbals. A fairly large area was thus purchased, but it was soon seen that in default of a proper building law builders would continue to construct the same kind of buildings in more modern quarters. The whole question of sanitary legislation and building regulations was thus brought up, and after a committee had investigated the condition of English cities, which they found in superior sanitary condition, they made recommendations looking toward wiser sanitary administration for the city. Two of the most important recommendations were the appointment of a competent medical officer of health and a staff of nuisance inspectors for the prevention of overcrowding and the interdiction of houses unfit for human habitation. In 1862 an act largely embodying the recommendations of this committee received the sanction of Parliament. Its provisions were deemed at that time exceptionally rigid, and the period of operation was limited to five years. In 1866, however, when the application for the renewal was made, not only were the old parts confirmed, but modifications in the way of improvement were added. The reports of the health committee in relation to the insanitary state of the older houses of the city, coming at a time when projects of construction of railway terminals were pressing for solution, determined the town council, in 1865, to apply to Parliament for a city improvement act, whose object, as stated in the title, was "the construction of new and the widening of older and dividing of existing streets, and for other purposes."

The scheme, as originally conceived, embraced about 88 acres, with an average population of 583 per acre, though in some districts more than one thousand were huddled together in this space. The average rate of mortality was 38.64 per 1,000, and the deaths from epidemic diseases 36 per cent of the whole. Sanction was given to the plan by Parliament in the improvement act of 1866. A much broader scheme than that originally conceived has been carried out under the sanction of later acts with financial results which the following statement shows:

The total cost of property acquired up to the end of the fiscal year 1893 by the Glasgow Improvement Trust has been as follows:

Within compulsory areas		$7,882,780.24
Oatlands		205,775.27
Overnewton		208,904.57
Cost of erection of two model tenements in Drygate and site thereof		16,672.95
Expenditure on formation of streets, squares, sewers, etc		506,251.25
Lands of Kennyhill and cost of forming same into Alexandra Park		194,660.00
Cost of seven lodging houses, sites, and Moncrieff street ground		435,302.08
Cost of Saltmarket and other new model tenements to date		255,067.52
Total		9,705,413.88
Of this there has been disposed of—		
For prices and feu duties within central areas	$4,428,227.17	
For prices and feu duties at Oatlands	230,481.98	
For prices and feu duties at Overnewton	243,858.61	
		4,902,567.76
Giving as the net cost of heritable subjects		4,802,846.12
Value of property still in the hands of the trustees		2,653,760.40
Deficiency		2,149,085.72
Total assessment received from the ratepayers since 1866		2,812,188.42
Excess of liabilities over assets May 31, 1893, which will have to be made by assessing		692,573.05
Total cost to ratepayers from first to last		3,504,761.47

For this ratepayers have obtained:

1. Alexandra Park.

2. Ninety-seven thousand one hundred and sixty-two square yards of ground, applied in the formation of 29 new streets and in the improvement of 25 existing ones, being 32,492 square yards of street surface beyond what was contemplated in the original scheme.

3. The sanitary and social amenities produced by the street, sewer, and other public works, which cost, as above stated, £104,027 15s. 10d. ($506,251.25).

BELGIUM.

The Belgian laws of July 1, 1858, and of November 15, 1867, regulate the expropriation of insanitary quarters for that country. The government, upon demand of the municipal council, may authorize the expropriation of ground destined for streets or for other public uses as well as constructions comprised in the projected plan. Thus one object of the works is to make healthy or to ameliorate, either wholly or in part, an old quarter or to construct a new one. A commission is appointed by the permanent deputation of the provincial council, composed of five members, among whom are one public relief officer, a physician, an architect, and an engineer. A general plan is made of the property, showing not merely the area of expropriation but what is to be done with such area after it has been taken and what part is to be sold. This remains a month on view in the municipal office. Whenever the land belongs to a single proprietor, or the several proprietors agree, they are given preference in executing the work. The

same privilege is granted to a proprietor or to proprietors owning one-half or more of the ground to be expropriated. The valuation is made by experts, named by the two contracting parties and by a third chosen by a judge in the court of primary instance for the particular quarter. The royal ordinance determines the conditions of sale of land not occupied by public streets. The laws refer to cities or communes of 2,000 inhabitants and over.

FRANCE.

There is no law in France like that of England to permit the expropriation of insanitary areas or dwellings. There may be expropriation for cutting through streets or other works of public utility. In such cases, if part of the property is needed the whole is taken, and if too little remains to build in accordance with hygienic requirements, the adjoining property may be expropriated. Some of the great boulevards of Paris have thus been constructed, practically without cost to the city, because the adjoining land has been so much enhanced in value that the price received when it was sold has been almost sufficient to meet the cost of public works. Expropriations in Paris are often anticipated by people who buy up property likely to be condemned. They raise rents nominally at once. In reality the tenants pay no more, the extra sum being handed back. In one case a man, knowing that a small piece of land at the junction of one of the principal boulevards with a street must sooner or later be taken, bought the property and built a magnificent house for which the city will ultimately be obliged to pay.

CHAPTER IV.

SOME RESULTS OF SANITARY REFORM.

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In London, in the summer of 1877, the prime minister of England, Lord Beaconsfield, speaking at the opening of some new blocks of improved tenements, said:

I have touched upon the health of the people, and I know there are many who look upon that as an amiable but merely philanthropic subject to dwell upon; but the truth is that the question is much deeper than it appears upon the surface. The health of the people is really the foundation upon which all their happiness and all their power as a state depend. It is quite possible for a kingdom to be inhabited by an able, active population; you may have skilled manufacturers, and you may have a productive agriculture; the arts may flourish, architecture may cover your lands with temples and palaces, you may have even material power to defend and support all these acquisitions; you may have arms of precision and fleets of torpedoes, but if the population of that country is stationary or yearly diminishes, if while it diminishes in number it diminishes also in stature and strength, that country is ultimately doomed. And speaking to those who I hope are proud of the empire to which they belong, I recommend to them by all the means in their power to assist the movement now prevalent for improving the condition of the people by ameliorating the dwellings in which they live. The health of the people is, in my opinion, the first duty of a statesman.

Other distinguished authorities testify to the profound economic and ethical significance of sanitary living environments.

Sir James Paget, the distinguished English physician, says the statistics of friendly societies and other similar bodies favor the belief that the whole population of England between 15 and 65 years old in each year work 20,000,000 weeks less than they might if it were not for sickness. Estimating those for the domestic, industrial, and agricultural classes as numbering 7,500,000 he puts their loss at £11,000,000 ($53,531,500) annually. "No one who lives among the poor can doubt," says he, "that a very large proportion of the sickness and loss of work which one sees might have been prevented." He reckons this preventable proportion at one-fourth. In such case the loss that is inflicted on the working class must be nearly £3,000,000 ($14,599,500) yearly. One entirely preventable disease, typhoid fever, causes, he calculates, an annual loss of 230,000 weeks of work to those who survive it.

The royal commission on the housing of the working classes, 1885, speaking of the housing of the poor in the low parts of London, say that the statistics of annual disease consequent upon overcrowding would not convey the whole truth as to the loss to health occasioned by it to the laboring classes. Some years ago the London board of health instituted inquiries in these low neighborhoods to see what was the amount

of labor lost in the year, not by illness but by sheer exhaustion and inability to work. It was found that upon the lowest average every workingman or workingwoman lost about twenty days in the year from simple exhaustion.

It is very evident, therefore, that no matter how much we may glean from comparative death rates as to the results of sanitary reform, they do not tell the whole story. There are thousands of cases of poor health and depressed vitality which are not followed by death. The improvement in the death rate is, however, the surest available gauge because it is the most tangible. For statistical purposes it is quite misleading, of course, to take an old and densely populated town whose area has not been extended for years and compare its death rate per 1,000 with other towns which, within the same period, have absorbed rural districts inhabited by fairly well to do people. The low mortality of such quarters necessarily operates to reduce the higher death rate in the old division.

In 1867 the census of tenement houses in New York revealed the fact that 18,582 existed, of which 5,814 were reported in bad sanitary condition from neglect, and 9,846 in bad sanitary condition from any cause. In 1891 an enumeration showed that the number of tenement houses had increased to 37,358, sheltering 276,565 families, and a total population of 1,225,421. Included in the latter were 160,708 children under 5 years of age. Of the total number of tenement houses 34,967 were front and 2,391 rear tenement houses. First-class apartment houses were not included. Such are the facts in relation to the housing of New York's inhabitants at the two periods mentioned. In the interval there had been an enormous increase in tenement houses, the number, in fact, having more than doubled. The general death rate per 1,000 inhabitants during the same period appears in the subjoined table, compiled from reports of the New York board of health. The figures speak well for the influences of sanitary supervision. Comparing 1866, the year the metropolitan board of health was organized, with 1891, there has been a substantial reduction. This fact is more clearly shown if the average over five-year periods be consulted.

DEATH RATE PER 1,000 IN NEW YORK CITY.

[From Reports of the Board of Health of the City of New York, 1890 and 1891.]

Year.	Death rate per 1,000.	Average annual death rate per 1,000.	Year.	Death rate per 1,000.	Average annual death rate per 1,000.	Year.	Death rate per 1,000.	Average annual death rate per 1,000.
1866	34.92		1876	27.11		1886	25.81	
1867	28.64		1877	23.65		1887	26.11	
1868	29.25		1878	23.68		1888	26.15	
1869	28.09		1879	24.13		1889	25.06	
1870	28.81		1880	26.41		1890	24.58	
		29.81			24.99			25.52
1871	28.22		1881	30.99		1891	25.97	
1872	33.70		1882	29.54				
1873	29.63		1883	25.71				
1874	29.87		1884	25.70				
1875	29.39		1885	25.40				
		29.74			27.38			

In London, according to the Annual Summary of Births, Deaths, and Causes of Death in London and Other Great Towns, 1891, published by the authority of the registrar-general, the average annual mortality by ten-year periods has been as follows:

	Per 1,000.
From 1841 to 1850	24.8
From 1851 to 1860	23.7
From 1861 to 1870	24.4
From 1871 to 1880	22.5
From 1881 to 1890	20.5

In Edinburgh the average annual mortality has been—

	Per 1,000.
From 1865 to 1874	26.26
From 1875 to 1884	19.94
From 1885 to 1890	17.51

Some share of the improvement ought fairly to be credited to demolitions wrought by the improvement trust. During the ten years from 1865 to 1874, the death rate averaged 26.26 per 1,000. In the next ten years the average was 19.94 per 1,000. Dr. Littlejohn, the medical officer of health, attributes the decrease largely to the removal of fever nests in the crowded parts of the city, and to exercising powers in relation to houses unfit for habitation. The general conditions of New York and Glasgow are much more similar than those obtaining in the former city and London. In Scotland, generally, the houses are from three to six stories high, whereas in London smaller buildings are the rule.

The number of tenements rented for £4 ($19.47) and under per annum in Glasgow, from 1885–86 to 1890–91, inclusive, was as follows in the different years:

1885–86	8,379
1886–87	8,526
1887–88	8,641
1888–89	8,559
1889–90	8,609
1890–91	8,443

This plainly shows that the low rental tenements did not increase proportionally with the increasing population; and this again shows that the pernicious practice of two families going into the same room is on the increase.

In Glasgow, at the sanitary census of 1881, out of every 100 dwellings, 30 were one-room tenements, 44 two-room, 15 three-room, 6 four-room, and only 5 five-room tenements and upward. Of the population, 25 per cent lived in one-room and 45 per cent in two-room tenements.

The Glasgow police act confers discretionary power to regulate the occupancy of tenements of not more than three rooms, and not exceeding an aggregate capacity of 2,000 cubic feet, exclusive of lobbies and recesses. This is done by affixing tin-plate tickets on the outer door

stating the cubic contents and the proportionate inmates allowed, at the very low rate of 300 cubic feet per adult or two children under 8 years. These are called "ticketed" tenements, and are all one or two room tenements. A system of night inspection over them is constantly maintained, and results in prosecutions for overcrowding when the legal number of inmates is exceeded. This system was originally applied during an outbreak of typhus fever, and its extension still follows the discoveries of the epidemic inspector. The better class of tenants avoid "ticketed" tenements, and even their neighborhood. Consequently, landlords are always warned before tickets are put up in fresh localities, so that they may save the reputation of their property by getting rid of tenants responsible for overcrowding. The inhabitants of "ticketed" tenements form a distinct class within the general body of inhabitants of one and two room tenements. Nor are they an inconsiderable class. The total number of ticketed tenements in the city (December 31, 1887) was 23,288, namely, 16,413 tenements of one room and 6,875 of two rooms. About 11 per cent in each case were found empty, so that we have 14,642 inhabited tenements of one room, containing 46,463 inmates, and 6,157 inhabited tenements of two rooms, containing 28,704 inmates. It thus appears that 35 per cent of the whole population of one-room, and 14 per cent of the population of two-room tenements, have their tenements ticketed. Of the inmates of the ticketed one-room tenements, 5 per cent are lodgers; of two-room, 6 per cent.

Statistics show that the number of ticketed tenements had risen at the end of 1892 to 24,000. There had been at the same time an increase in the amount of cubic air space required, so that the 24,000 ticketed tenements instead of accommodating 98,400 adults, as would have been possible under the old law, may now shelter but 81,180. The ticketed tenement has a direct tendency to discourage the maintenance of slums. The value of such property is reduced, because the best tenants leave. Continual nagging and inspection make the owners tired of holding it. Thieves and prostitutes remain as tenants, and often poor, unskilled working people with small wages are obliged to stay. Both classes are irregular rent payers.

The death rate of Glasgow, when the improvement trust commenced operations (1871), was 32 per 1,000; in 1892 it was 22.8 per 1,000 for the extended city, and for the old area 23.6.

In Liverpool the returns of persons per inhabited house during the last five census periods would seem to indicate a gradual improvement as regards overcrowding. The figures are only valuable upon the assumption that the type of houses has not materially changed, which competent observers believe to be true:

NUMBER OF PERSONS PER INHABITED HOUSE IN LIVERPOOL, ENGLAND.

[From the Report on the Health of Liverpool during the year 1891.]

Year.	Persons per inhabited house.
1851	6.9
1861	6.7
1871	6.3
1881	5.98
1891	5.67

As a rule houses in Brussels were not built expressly for working people. They were originally intended for the wealthier classes, who, as the buildings grew older and fashionable localities changed, moved elsewhere, their former habitations being adapted for working people. Official statistics of death rates in the Belgian capital, prepared by Dr. Janssens, furnish testimony to the efficiency of general sanitary amelioration:

DEATH RATE PER 1,000 FROM INFECTIOUS DISEASES AND FROM ALL CAUSES IN BRUSSELS, BELGIUM.

Years.	Death rate per 1,000 from—	
	All causes.	Infectious diseases.
1864 to 1868	31.3	3.03
1869 to 1873	29.1	4.06
1874 to 1878	25.7	2.02
1879 to 1883	25.3	1.58
1884 to 1888	23.7	1.59
1889 to 1890	21.9	1.31

In 1874 the bureau of hygiene was organized and a campaign against nuisances seriously begun. The difference between the total number of deaths for the fifteen years preceding 1874 and the fifteen years following that date was 12,825. If we accept Dr. Rochard's computation as to the economic value of life among urban populations, the general social profit obtained amounted to 18,000,000 francs ($3,474,000).

During the year 1871 Professor Virchow of Berlin published a report showing that dividing the preceding fifteen years into three periods of five years each the mortality of the city had advanced in the ratio of 5, 7, 9, so that in a fourth period it would have more than doubled on the first. He also showed that over the same periods the mortality of children under 1 year had been in the ratio of 5, 7, 11, so that it had actually doubled within fifteen years. In 1872, 40 per cent of the total number of deaths were of children under 1 year of age. The result of this showing was the commencement of works in 1873 which soon transformed the city into one of the most healthy urban centers on the

continent. Not only was the increasing mortality checked, but it has been reduced from over 30 to about 22 per 1,000.

Results are equally striking in relation to infant mortality in New York city. Including under this term children from 1 to 5 years of age, the figures show a notable decline during the period from 1875 to 1891. The following table sets forth the facts:

PER CENT OF DEATHS IN NEW YORK CITY BY AGE PERIODS.

[From Annual Report of the Board of Health of the City of New York, 1891.]

Year.	Total deaths.	Per cent of total deaths.			Year.	Total deaths.	Per cent of total deaths.		
		Over 5 years.	Under 1 year.	1 to 5 years.			Over 5 years.	Under 1 year.	1 to 5 years.
1875	30,709	51.65	27.81	20.54	1884	35,034	56.41	27.50	16.09
1876	29,152	51.26	28.03	20.72	1885	35,682	57.21	26.08	16.71
1877	26,203	53.03	28.31	18.66	1886	37,351	56.84	26.32	16.84
1878	27,008	54.05	26.29	19.66	1887	38,933	56.94	25.90	17.16
1879	28,342	54.92	26.70	18.37	1888	40,175	56.79	25.91	17.29
1880	31,937	54.13	27.32	18.55	1889	39,679	56.77	26.54	16.70
1881	38,624	54.08	25.09	20.83	1890	40,103	59.34	25.66	15.00
1882	37,924	53.80	26.02	20.18	1891	43,659	58.26	25.75	15.99
1883	34,011	59.26	25.49	15.25					

In London, according to the summary of the registrar-general already referred to, the average annual mortality, by ten-year periods, of children under 1 year of age to 1,000 births has been as follows:

1841 to 1850	157
1851 to 1860	155
1861 to 1870	162
1871 to 1880	158
1881 to 1890	152

In Glasgow the percentage of deaths of children under 5 years of age to total deaths has been as follows:

	Per cent.
1855 to 1859	52.20
1860 to 1864	49.72
1865 to 1869	47.52
1870 to 1874	45.48
1875 to 1879	45.02
1880 to 1884	44.49
1885 to 1890	43.63

Of the children who die in Glasgow before they complete their fifth year, 32 per cent die in one-room dwellings, and not 2 per cent in tenements of five rooms and upward. The average annual death rate, by various periods, of children under 1 year of age, per 1,000 births, in Glasgow was as follows:

1873 to 1875	163
1876 to 1880	147
1881 to 1885	152
1886 to 1893	145

There is an undoubted relation between overcrowding, either within dwellings or on ground space, and death rates. In Saint Giles' ward,

Edinburgh, where one-eighth of all the one-room tenements of the city were situated, the death rate was 7.8 per 1,000 above the general average.

The following table furnishes significant facts for specified localities in New York:

POPULATION, DEATHS, AND DEATH RATES IN CERTAIN LOCALITIES IN NEW YORK CITY.

[From Annual Report of the Board of Health of the City of New York, 1891.]

Locality.	Population.			Deaths.			Death rates.		
	Total.	5 years or over.	Under 5 years.	Total.	5 years or over.	Under 5 years.	General.	5 years or over.	Under 5 years.
Bordering on East River below Eighty-sixth street	200,737	172,567	28,170	5,549	2,881	2,668	27.64	16.70	94.70
Bordering on North River below Eighty-sixth street	129,630	114,114	15,516	3,953	2,107	1,846	30.49	18.46	118.60
Former marsh land	161,294	138,764	22,530	4,302	2,124	2,178	26.66	15.31	96.67
Made land	73,865	65,259	8,606	2,175	1,249	926	30.84	19.14	107.60
Vicinity of slaughter-houses	63,753	55,469	8,284	1,764	868	896	27.67	15.65	108.15
Vicinity of gas houses	106,620	92,983	13,637	2,810	1,353	1,457	26.36	14.55	106.86

Density of population within houses is much more nearly related to death rates than density of population upon the acre. In New York the population of the poor Jewish quarter is very dense, namely, 535 to the acre. The death rate, however, is comparatively low, a fact most probably due to the cleaning up every Friday. The experience of large London housing companies goes to show that from 1,000 to 1,200 persons may be housed on an acre with resulting lower mortality than for the city as a whole.

The following table gives the density of population and death rate of twenty-five of the large towns of the United Kingdom containing 100,000 population and upward during the census year 1891:

PERSONS PER ACRE AND DEATH RATE IN TWENTY-FIVE LARGE TOWNS IN GREAT BRITAIN.

[Quoted in the Report on the Health of Liverpool during the year 1891 from the registrar-general's reports.]

Town.	Population.	Persons per acre.	Death rate per 1,000.	Town.	Population.	Persons per acre.	Death rate per 1,000.
London	4,221,452	56.5	21.4	Salford	198,717	38.4	26.0
Glasgow	567,143	92.8	25.3	Newcastle-upon-Tyne	187,502	34.9	23.8
Liverpool	517,116	99.3	26.9	Portsmouth	160,128	37.1	19.0
Manchester	506,469	39.6	26.5	Leicester	142,581	44.6	21.7
Birmingham	429,906	51.2	22.2	Oldham	132,010	27.9	25.7
Leeds	369,099	17.1	22.9	Sunderland	131,309	43.3	25.0
Dublin	347,312	14.0	26.5	Cardiff	130,283	17.7	22.1
Sheffield	325,304	16.6	23.9	Blackburn	120,496	17.3	25.8
Edinburgh	261,970	44.4	21.6	Brighton	115,606	46.0	18.2
Bristol	222,049	61.8	20.9	Bolton	115,253	47.9	21.9
Bradford	216,938	20.1	22.2	Preston	107,864	26.8	27.3
Nottingham	212,662	21.4	19.9	Norwich	101,316	13.6	19.3
Hull	200,934	25.4	21.0				

Generally speaking, this table shows that where there is the greatest density of population per acre there the death rate is the highest. There are exceptions, however, but they are almost exclusively in the cities of Lancashire, where the smoke and dampness render the climate exceptionally unfavorable.

The subjoined tables, relating to Scotland, are most interesting, and give pertinent facts in relation to death rates and house accommodation:

MEAN DEATH RATE (1871 TO 1880), AVERAGE SIZE OF FAMILIES, AND PER CENT OF POPULATION LIVING IN DIFFERENT-SIZED TENEMENTS IN EIGHT PRINCIPAL TOWNS OF SCOTLAND.

[From the Vital Statistics of the City of Glasgow, Part I.—Preliminary, December, 1885.]

Town.	Death rate, 1871 to 1880.	Average size of family (census of 1881).	Tenements of—									
			One room.		Two rooms.		Three rooms.		Four rooms.		Five rooms or over.	
			Average size of family.	Per cent of population.	Average size of family.	Per cent of population.	Average size of family.	Per cent of population.	Average size of family.	Per cent of population.	Average size of family.	Per cent of population.
Aberdeen	21.7	4.30	2.4	13.6	4.2	38.3	5.0	20.3	5.2	9.1	6.9	18.7
Leith	22.5	4.49	3.0	14.2	4.5	43.3	4.8	18.3	5.0	9.0	6.3	15.2
Perth	22.6	4.42	2.3	10.0	4.1	34.3	4.8	19.3	5.0	10.7	6.8	25.7
Edinburgh	23.2	4.36	2.7	16.8	4.2	31.6	4.8	15.4	4.9	8.9	6.6	27.3
Dundee	25.7	4.36	2.7	16.9	4.2	48.1	5.3	14.7	5.1	6.2	11.2	14.1
Greenock	27.4	4.81	3.2	15.4	4.9	47.3	5.3	19.7	5.5	5.7	7.0	12.0
Paisley	27.8	4.78	3.4	23.0	5.1	44.1	5.5	14.7	5.2	6.8	7.5	11.4
Glasgow	28.6	4.45	3.1	24.7	4.9	44.7	5.3	16.0	5.3	6.1	7.8	8.5
Total		4.44	2.9	19.9	4.6	41.9	5.1	16.4	5.1	7.1	7.3	14.7

RELATION OF DEATH RATE TO HOUSE ACCOMMODATION IN SCOTLAND.

[From the Vital Statistics of the City of Glasgow, Part I.—Preliminary, December, 1885.]

Town.	Death rate, 1871 to 1880	Persons per acre, 1881.	Rooms per tenement.	Persons per room.	Per cent of population living in one-room tenements.	Average number of persons in one-room tenements.	Per cent of population living in tenements of five rooms or upward.	Average number of persons in tenements of five rooms or upward.
Aberdeen	21.7	18	3.42	1.511	13.6	2.4	18.7	6.9
Leith	22.5	43	2.98	1.671	14.2	3.0	15.2	6.3
Perth	22.6	7	4.96	1.312	10.0	2.3	25.7	6.8
Edinburgh	23.2	55	4.19	1.320	16.8	2.7	27.3	6.6
Dundee	25.7	42	2.85	1.870	16.9	2.7	14.1	11.2
Greenock	27.4	46	2.64	1.907	15.4	3.2	12.0	7.0
Paisley	27.8	16	2.42	1.984	23.0	3.4	11.4	7.5
Glasgow	28.6	81	2.34	2.054	24.7	3.1	8.5	7.8
Total		40	2.92	1.740	19.9	2.9	14.7	7.3

The towns are placed in the order of their mean annual death rate. It will be seen that they fall naturally with reference to death rate into two groups of four towns each. In the first group are Aberdeen, Leith, Perth, and Edinburgh, with death rates ranging from 21.7 to 23.2 per 1,000; in the second group are Dundee, Greenock, Paisley, and Glasgow, with death rates ranging from 25.7 to 28.6 per 1,000.

The second table shows that the tenements are smallest in Glasgow, where they average 2.34 rooms each, and largest in Perth and Edinburgh, where they average 4.96 and 4.19 rooms each, respectively. In the second group the size of the tenement varies but little, from 2.34 to 2.85 rooms each. Here it is worthy of note that the death rate rises as the size of the tenement diminishes. There seems likewise to be a close relation between the average number of persons per room and the death rate. The four towns with the highest death rates show also the largest number of persons to the room. Dundee, with 1.870 persons to the room, has a death rate of 25.7 per 1,000, and Glasgow, with 2.054 persons to the room, has a death rate of 28.6 per 1,000.

Obviously the percentage of the total population living in tenements of one room is a fact of the greatest importance. It must have a close relation to physical health. The table shows that generally speaking the highest death rates are found in the towns which show the largest percentage of the population living in one-room tenements. Another column of this table shows the average number of persons living in each one-room tenement. These averages quite generally follow the death rate, the highest death rates being found in the towns with the largest number of persons in one-room tenements. Again, the town which has the smallest percentage of the population living in tenements of five rooms or upward has the highest death rate, and so on throughout the group of the four towns which have the high death rates. Beyond this line there is a slight exception, Edinburgh and Perth having higher death rates than Aberdeen and Leith, though they have a greater percentage of the population living in tenements of five rooms and upward. In Dundee, Greenock, Paisley, and Glasgow, where these larger tenements are most crowded, we find the highest death rates. This table exposes the tremendous hygienic influences of overcrowding. Generally speaking, it proves that the most densely populated tenements are connected with the highest mortality and vice versa.

CHAPTER V.

SANITARY AID SOCIETIES AND THEIR WORK.

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Some of the most prominent witnesses before the English royal commission on the housing of the working classes, of 1885, stated their belief that existing laws were ample for dealing with all sanitary questions if they were properly enforced. The same complaint has often been heard in different cities of the United States. Sanitary law and sanitary administration are two quite different things, and the one does not always follow the other in natural sequence.

It must be observed, however, that expediency plays a certain part in sanitary administration. To have rigidly enforced at the outset stringent laws, such as exist in New York, for example, would have arrayed the property owning element in opposition and might have brought about a repeal. As owners of unhealthy property grow accustomed to greater pressure, and as tenants become more exacting in their demands, the task of sanitary authorities becomes easier. In the beginning an insistence on conformity to legal prescriptions (many of which were looked upon as unnecessarily strict) would have been unwise and might have blocked the way to progress.

Sanitary authorities, like all other administrative bodies, if left to themselves, are apt to become conservative. A little stirring up occasionally is usually a good thing, and the interest of enlightened citizens, organized into associations for extending aid and cooperation, is especially useful.

The testimony of such veterans in sanitary science as Dr. Russell of Glasgow, Dr. Shirley Murphy of London, Dr. du Mesnil of Paris, and Dr. Janssens of Brussels, as well as of a host of American experts, goes to show that the ignorance and apathy of the poor, for whose benefit work has to be done, are among the greatest obstacles met with in the discharge of duty. Sanitary aid societies may do much to help the authorities by acting as intermediaries during the period in which fear of the possible consequences of communicating a knowledge of the existence of nuisances or other insalubrity still holds sway. Direct contact between the poor and boards of health being once established, there is no longer the same necessity of intervention. An important fact is that without the good offices of the intermediary, cooperation is with difficulty established.

A fundamental need, which has so far received but scant recognition in this country and England, but which is at least recognized in the educational systems of France and Belgium, is instruction in the elements of household hygiene in the public schools. The effects of this kind of teaching would soon become apparent, and in the course of a generation or two would powerfully react upon sanitary amelioration. Dissatisfaction with unhealthy surroundings would be cultivated, and the knowledge of what was good and wholesome would make of the rising generation a far more exacting tenant class than their elders.

The principal functions of sanitary aid associations may be summarized as follows:

1. To organize and mold popular sentiment in favor of wise sanitary legislation.

2. To assist boards of health in the discharge of their duties by bringing to their knowledge the existence of insalubrious conditions in districts where they are most likely to occur and which need more or less constant watching.

3. To encourage sanitary authorities to do their whole duty by supporting them in difficulties arising in critical cases, and in bringing proper pressure to bear wherever there seems to be an inclination to relax effort. The creation of public opinion to sustain sanitary authorities in their work is also an important duty.

4. To assist in the education of the poor on sanitary questions; teaching them that there is an authority to appeal to against nuisances, instructing them in procedure; leaving in their homes a printed list of elementary hygienic observances, and such literature as is occasionally distributed by boards of health, giving suggestions on the care of infants, and the conditions to be observed in the treatment of persons in cases of infectious diseases. Education in sanitary as well as in all other matters lies back of reform. The knowledge of improved conditions begets a desire for their enjoyment.

5. The publication from time to time of facts gleaned from official sources which tend to act as a salutary warning against residence in unhealthy neighborhoods. An example of what is meant is the inquiry made by Dr. Thresh into the causes of excessive mortality prevailing in District No. 1, Ancoats, Manchester, England. Taking the returns of deaths from the health and hospital reports he was able to show the true death rate for the whole district. It was proved that only in a few blocks was this less than 40 per 1,000, while in some places it was 50, 67, and even 80 per 1,000. The publication of these facts aroused the more intelligent working people who were residents of the neighborhood to form "sanitary and healthy home associations," as they called them. They were awakened from their apathy, and in a short time the rehabilitation of the district was effected. Dissemination of knowledge in relation to death rates and causes of sicknesses for specified localities is of great practical value. Not only is public opinion

aroused, but interested opposition is left powerless to thwart progressive action. Public opinion, when informed, will always sustain sanitary authorities in the application of drastic remedies. To make healthy and keep healthy existing buildings is a work of scarcely less importance, though much more difficult to accomplish than the safeguarding of new structures. Voluntary associations of individuals cooperating harmoniously with the regularly constituted authority may powerfully assist in promoting health and good housing among the masses. In sanitary matters eternal vigilance is the price of safety.

All well organized boards of health seek to disseminate among the poor information relating to the care of children and the maintenance of a favorable hygienic environment. The New York board of health does considerably more. It maintains a special summer corps of physicians whose duty it is to visit every tenement house, beginning in the latter part of June, for the purpose of giving medical advice and treatment, distributing literature, giving hints for the care of infants, and searching out insanitary conditions. There are fifty of these medical gentlemen, forty-eight doing duty in the tenement house district, while two are assigned to the hospital boat and to charitable excursions undertaken for the benefit of mothers and children. Personal visitation of this kind is far more effective than the distribution of literature alone. Attention is usually paid to oral advice from those professionally competent to give it, while heed is not always accorded to even the most useful hints which well edited circulars may contain. A word or two often suffices to correct household defects unfavorably affecting the health of occupants which were regarded hitherto with complacency.

The Mansion House Council on the Dwellings of the Poor is one of the oldest and most widely known among sanitary aid associations. It is presided over by the lord mayor of London, and its present vice-presidents are the Archbishop of Canterbury, the chief rabbi, who replaced Cardinal Manning at the latter's death, and the Marquis of Salisbury. The organization was founded in 1884. At that time the sanitary administration of London was confided to the various vestries and district boards, whose governing officers often were interested in opposing the enforcement of sanitary law, or who were entirely apathetic in the matter. The object of the society, whose headquarters is the Mansion House, has been to provide in each parish a body of independent persons with adequate knowledge and experience, who, with no other aim than that of securing to the poor the benefits which the legislature has provided for them, will inquire into the sanitary conditions of the poorer quarters, ascertain where grievances exist, and bring them to the attention of the proper authorities, and when other expedients fail will set the law in motion. To do this with promptitude and thoroughness is beyond the range of accomplishment by any single individual, consequently the necessary machinery was provided for carrying it out. Voluntary committees were constituted

in the principal parishes, and inspectors have brought to light cases of insalubrity which have been dealt with either by the authorities or the owners. In places were the average of sanitation was especially low the secretary of state for the home department has, at the society's request, caused a public inquiry to be made into the condition of tenements occupied by the poor. A general idea of the work done by the society may be gathered from the following statement of its activities during the year 1891:

The report states that operations had been very successful. The year previous closed with a public inquiry into the sanitary condition of Shoreditch, the results of which were perfectly satisfactory, inasmuch as all the statements made by the council were fully justified. Early in January, 1891, the solicitors of the association, under Section XII of the housing of the working classes act of 1890, took an action in a case where a tenant had lost several children as well as his wife from the insanitary condition of his home. Damages were claimed from the landlord which, after some correspondence, were paid in full without recourse to court proceedings. The council made an attempt to get the president of the local government board to introduce a clause into his public health bill rendering the registration of ownership of houses and land compulsory. Although not successful at the time the matter will not be allowed to drop. The passage of the public health (London) act of 1891 was an event of great importance. The council took great interest in promoting the measure, and especially certain clauses designed to bring the vestries and district boards of the metropolis under the control of the local government board, and also in creating a central sanitary authority in the London county council. The report goes on to say:

For our part we shall not cease, so long as we have funds at our command, to watch jealously the doings of the various bodies intrusted with the guardianship and promotion of the health of the people. Our work, instead of lessening, is increasing; and from all parts of the United Kingdom our advice and heed are being sought as to the establishment of sanitary aid committees. We have had nearly the whole of the last year three inspectors regularly at work, and sometimes four. There is scarcely a parish in the metropolis to which our services have not been called, and it is one of the most hopeful signs that the public are becoming increasingly alive to the value of sanitation, as shown by the numerous applications we receive almost daily for aid in the redress of grievances arising from sanitary conditions in connection with dwellings or workshops.

The board of guardians for the relief of the Jewish poor of London has a sanitary committee. An inspector is hired and is constantly employed in visiting the houses of the Jewish poor. During the year 1891, the last for which any report has been received, 4,170 visits were paid to 1,831 houses. Eight hundred and eight houses were visited only once, and 343 houses were visited four times or more. Out of the 1,831 houses visited 893, or less than one-half, were classified as being

up to the standard of the local authority. The rest were below. The report says:

It is clear that the task of attempting to obtain an improvement in the sanitary condition of the houses of the Jewish poor demands the utmost watchfulness, all houses found defective having to be visited again and again, until, either with or without pressure on the part of the local authority, the owners are induced to remedy the matters complained of. At the same time it is gladly admitted that very gradually a decided amelioration is taking place in respect to the districts with which the committee has to deal, the necessity for repeated visits being considerably smaller than in past times.

It is gratifying also to know that practically the whole of the cases which stood on the books as requiring attention at the beginning of 1891 were reinspected during the year and have been satisfactorily dealt with, defects having been removed. The most satisfactory part is that in more than one-half of the cases where sanitary defects were discovered the ameliorations were secured without any action of the local authority, but by intimations to the owners from the committee. Sixty per cent of the cases were so rectified. The work of this committee is confined largely to the East End, taking in the districts known as the City, Mile End, Whitechapel, Saint George's, and Bethnal Green. It is of great importance because of the influx of Jews from Russia since the persecution began. Serious consequences, especially as regards overcrowding, might ensue, unless considerable supervision were exercised. This committee does not deal so much with overcrowding as with nuisances.

There seems to be a great variety of practice among Jews of different nationalities. In Whitechapel one may find one side of the street occupied solely by Polish and the other by Russian Jews. The one are quite cleanly in their habits, while in the case of the other the hygienic standard is exceedingly low.

The Social and Sanitary Society of Edinburgh is an organization which accomplishes a great deal of good. It employs inspectors of both sexes, the greater number being women, who visit buildings in all parts of the city in order to ferret out cases which need the attention of the authorities. They have not the right to enter any premises; indeed, they have no official prerogatives whatever, but tenants generally receive them courteously and do not object to their visits. Landlords and factors, as a rule, bear them no very favorable sentiments. The inspectors make reports on printed blanks whenever the cases are of special importance; otherwise, on prepared postal cards, which they mail to the city engineer's office. An official inspector, upon receipt of such notices, immediately visits the premises in question and recommends appropriate action.

The Belgian committees of patronage, though semiofficial organizations, in reality represent the cooperation of a committee of influential citizens with local sanitary authorities to stimulate the latter more efficiently to perform their work. The functions of these bodies will be more fully referred to in Chapter VII.

The Better Dwellings Society of Boston is a sanitary aid association. Its organization was due to the initiative of the associated charities of Boston, whose board of directors, on December 11, 1891, adopted the following resolution:

In view of the growing interest and increase in public sensitiveness concerning the worst homes in which poor people are allowed to live, the board believes that now is the time for a vigorous effort to aid the board of health in causing such tenements either to be improved or vacated. The board will therefore take steps through its committee on tenements to invite representatives from the Boston Cooperative Building Company, the Improved Dwellings Association, the Workingmen's Building Association, and the public at large, to form, with members of the associated charities, a joint committee, with power to add to their number, to take such action as they may deem fit to improve the tenements of the poorest of our population, or, where these tenements are so bad that they can not be made habitable, to cause them to be vacated. The board hopes that such a joint committee will employ the best professional experts to cooperate with the committee in an investigation of those tenements which should not be occupied as homes, and in appearing at any hearings before the board of health.

In May, 1892, the society was finally constituted, its preamble setting forth the fact that the object was to aid in improving the sanitary condition of Boston, and especially of its tenement houses. Two special subcommittees with this end in view, the one designated for "the investigation of unfit tenements," and the second as a "sanitary committee," were constituted. At this meeting a vote was passed to "approve the action of the [executive] committee in complaining to the board of health of the tenements inspected by them on February 10, 1892, and that the action of the board of health in ordering them to be vacated is entitled to the strong support of this society and of all who are interested in the welfare of our very poor citizens." It was also voted that in consideration of the fact that the rents paid in tenements unfit for habitation were nearly the same as those paid for fairly good tenements there was no reason for retaining the former on the score of economy to tenants, and that "the board of health be urged to proceed to vacate all the large number of tenements which are unfit for human habitation." The Boston board of health responded quickly to the recommendations of the committee. Within three days after the petition was filed 19 places were ordered vacated. In the first three months of the activity of the society 49 houses were closed. During the previous year 99 were ordered vacated, but of this number only 11 were actually closed.

In New York there are probably thirty associations engaged in ascertaining infractions of the laws, and otherwise aiding the sanitary authorities. The president of the board of health has sometimes found some of these organizations a little querulous and troublesome, but in general he believes them to be of very considerable utility. The Sanitary Aid Society has been one of the most important of this class of volunteer bodies. It was founded about nine years ago, and has at

various times instituted a house-to-house visitation, gathered statistics of the most flagrant violations of sanitary laws, especially in that most overcrowded part of the city, the Tenth ward, and with this material has urged the health board to extra activity and reenforced it in its pleas for a larger sanitary inspection corps. In a measure, the society has assisted in cleansing and remodeling many of the most dangerous of the overcrowded tenements, and in abating nuisances which were a constant menace to the city. Among its other activities it has opened a model lodging house, thus attacking the problem of overcrowding from both sides.

The Sanitary Protective League, the Ladies' Health Protective Association, a most aggressive and successful organization of women who extend their activities much beyond the sanitation of houses, and the society in which Dr. Leo is the moving spirit, and which concerns itself particularly with the care of newly arrived immigrants and other victims of the sweat shop, are conspicuous examples of sanitary aid societies in the American metropolis.

The New York Association for Improving the Condition of the Poor has now completed its fifty-first year of existence. Among the objects of the society are enumerated—"improving the sanitary condition of the dwellings of the poor and the elevation of their home life, their health, and their habits." Taking the report of 1891 for example, it is found that 506 complaints were received of the insanitary condition of tenement houses, streets, and alleys. Four hundred and fourteen appeared to be good causes and were reported to the board of health, 4 to the department of public buildings, 7 to owners directly, and the remainder were not reported. The board of health found that in 293 cases there was good cause for complaint. In 89 instances nuisances were abated; in 25 cases the complaints were considered ill-founded, and 7 cases were still under inspection. Leaking roofs, defective water-closets, premises generally filthy, and wet cellars were the chief causes cited.

Vigilance is necessary to maintain a proper hygienic standard in the housing of the poor. From the very magnitude of their work the regular sanitary administrations find themselves crippled from lack of resources and of inspectors sufficient to fully accomplish the work. The organization and maintenance of such societies is a necessity in order to secure the wise enforcement of health laws and the advance of sanitary education in any city. The prime conditions of success are hearty cooperation with regularly constituted authority, and an intimate knowledge of the conditions and needs of the homes of the poor.

CHAPTER VI.

BUILDING REGULATIONS.

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IMPORTANCE OF REGULATIONS.

The importance of a comprehensive and uniform plan in laying out the suburbs of cities is by no means fully appreciated. It is forgotten that such districts, more or less remote in our own time, may be the very heart of the city in a succeeding generation. The folly of our forefathers is often a subject of facetious, and sometimes irritating, comment. But the folly is not all past, and in this regard we of the present are frequently guilty. While we are occupied in undoing the folly of our forefathers, and spending vast sums—in the manner of Boston which during the last twenty-five years, spent $40,000,000—to widen or straighten crooked thoroughfares, we allow the perpetuation of the same evils in rapidly growing suburbs. How often do individuals or companies, in their so-called improvement of certain sections, lay out the acres at their command in streets running at right angles to those already existing, without reference to any system of thoroughfares. When the owner of the adjoining property makes up his mind to improve his possessions he seeks to get out of them the largest amount of salable land and runs his streets in conformity with his neighbors', or not, as best suits his convenience or interest. Such arrangements as these, in the second or third generation, are bound to create insanitary property. Subsequently these sections become the slums, the cost of eradicating which, and of making provisions for proper light, air, and ventilation, is simply enormous.

German cities have taught us a valuable lesson in the matter of laying out suburbs. Improvement plans are furnished by the municipality, and architects are invited to compete in presenting designs. After it has been decided that a certain district shall be opened up, a jury is appointed to assess damages, terms are made with private owners, and the architect furnishing the most acceptable scheme is awarded the prize. In Berlin an effective check is placed upon too rapid urban development by prohibiting building upon unsewered land.

Overcrowding on space is likewise a question of deep importance. It is not sufficient to prescribe that the structural characteristics of a house shall be such as to make it reasonably healthy. The report of the English local government board in 1888 on back-to-back houses (*a*)

a Houses built back-to-back, with no intervening open space whatever.

shows that where through ventilation is impossible, and where rooms face narrow closed courts in which the atmosphere is always sunless and stagnant, a powerful tendency is created toward excessive mortality from diarrhea, consumption, complaints of the respiratory organs, and zymotic diseases generally. Upon the adoption by the city council of the act of 1890, for improvement in the dwellings of the working classes, the city of Manchester found itself confronted with the prodigious task of dealing with a great many back-to-back cottages. In order to discover a rational method, and effect a permanent cure, the medical officer of health, Dr. John Tatham, was requested to make a report to the unhealthy dwellings subcommittee upon the whole question.

An enumeration of the back-to-back houses in Manchester disclosed the fact that there were about 10,000. During the five years following 1879, while Dr. Tatham was medical officer of Salford, immediately adjoining Manchester, he collected certain information as to death rates in districts containing different proportions of back-to-back houses, which furnishes indisputable evidence as to their unhealthiness. Four groups were taken, an enumeration of the population made, the percentage of back-to-back houses ascertained, and the annual death rate per 1,000 inhabitants from all causes, and from four specific diseases which are perhaps most largely affected by insanitary conditions. The results appear in the following table:

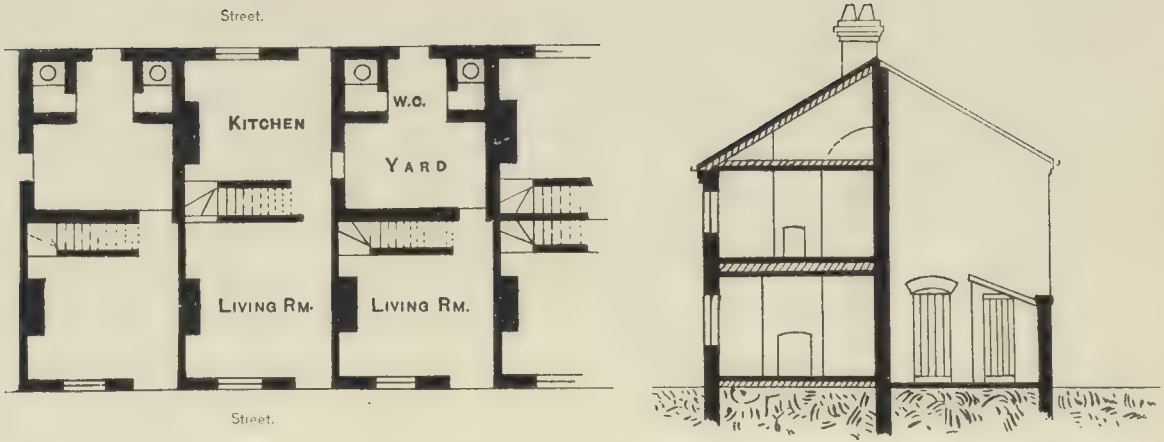
ANNUAL DEATH RATE PER 1,000 DURING FIVE YEARS IN BACK-TO-BACK HOUSES IN MANCHESTER, ENGLAND.

[From Provisional Report on Back-to-back Houses, by the Medical Officer of Health, Manchester. April, 1891.]

Groups.	Total population.	Percentage of back-to-back houses.	All causes.	Common infectious diseases.	Consumption.	Other lung diseases.	Diarrhea.
I	8,713	0	27.5	4.5	2.8	6.6	1.4
II	11,749	23	29.2	4.8	3.3	7.8	1.6
III	11,405	56	30.5	6.2	3.6	7.9	2.1
IV	892	100	38.4	8.7	5.2	9.2	3.4

The general sanitary condition of these groups was practically the same; but notwithstanding this the table disclosed the fact that the general mortality in back-to-back houses exceeded that in dwellings of the same class with through ventilation by 40 per cent, the mortality from infectious diseases by 93 per cent, and that from consumption and other lung diseases by 86 and 39 per cent, respectively. The mortality from diarrhea was more than twice as heavy. In every case the death rate from all these classes of diseases increases as the proportion of back-to-back houses increases.

Owing to the great number of these houses in Manchester it was not considered practicable to demolish them all, notwithstanding they were,



PROPOSED PLAN FOR REMODELING BACK-TO-BACK HOUSES, MANCHESTER, ENGLAND.

PLAN NO. 1.

for the most part, old, defective in construction, ill drained, and without decent water-closet or ash-pit accommodation.

Dr. Tatham, while not committing himself definitely to the recognition of any permanent scheme, favored that suggested in the accompanying plan (plan No. 1).

Here two blocks of two-room two-story houses, built back-to-back so as to allow no through ventilation, furnished the problem. The plan shown provides for the demolition of every other house in one block. Each of the houses remaining in this block is connected with the house in the other block adjoining, thus forming a four-room house running through from street to street. In the other block the remaining houses stand as two-room houses, but are provided with ventilation and improved lighting from the yard, made by the above mentioned demolition. This yard is used in common by the tenants of a two-room and those of a four-room house.

House overcrowding on a given area is guarded against, and suitable and separate water-closet accommodations in the yard for every two families in the block is secured. The chief danger lies in the possible difficulty in letting four-roomed tenements. There is a danger that subletting into two separate apartments of two rooms each would be resorted to, thus eliminating the possibilities of through ventilation.

No words need be used to emphasize the importance of properly prepared sites and of good drainage. Lord Shaftesbury mentions a peculiar case showing the value of the latter. In Lambeth Square, which was occupied by a class of working people in receipt of good wages, deaths at ordinary times numbered about 30 in 1,000. Without any apparent reason the rate rose to 55 in 1,000. The abolition of cesspools, which had been within the houses, and the substitution of water-closets, together with providing self-cleansing drains, reduced the death rate to 13 per 1,000.

Overcrowding on space is a very important matter. Liverpool is the most densely populated city in Great Britain. Its death rate is, with one exception, also the highest. Still, density of population as the cause of a high death rate must always be considered in reference to the character of the buildings. Sir Sydney Waterlow testified that the average number of persons housed on an acre of space by his company was 1,000. He was of the opinion that this was not too many where good ventilation was provided and where streets are wide. His theory seems to be borne out in the investigation made by Dr. Arthur Newsholme into the vital statistics of the Peabody and other block dwellings in London which show a most favorable death rate. The exact results of this inquiry are given elsewhere. It is undeniable that block dwellings, when very high, cause drafts of cold air in the streets below and shut off other property from the rays of the sun. Human beings are said to be as much dependent for their health upon sunlight as are plants.

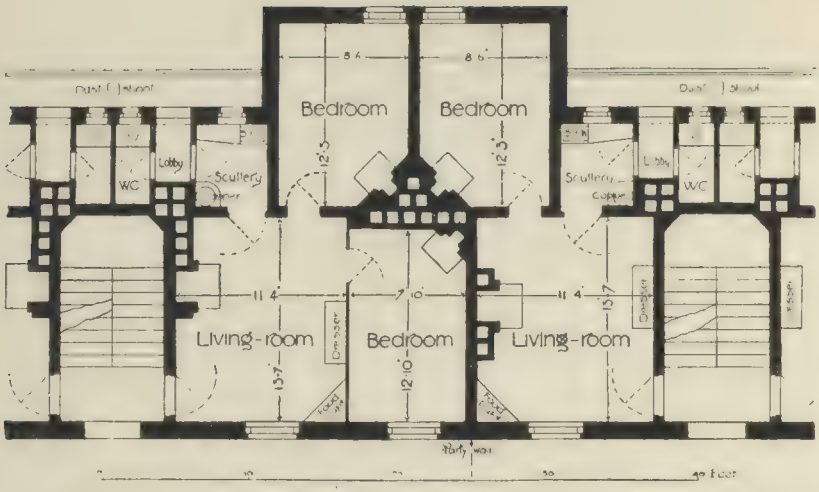
LONDON, ENGLAND.

In London previous to 1855 there were no regulations to prevent building houses back-to-back—that is, without any intervening open space whatever. The act of 1855 required that "every building used or intended to be used as a dwelling house, unless all the rooms can be lighted and ventilated from a street or alley adjoining, shall have in the rear or on the side thereof an open space exclusively belonging thereto of the extent at least of 100 square feet." The height or width of the building did not matter.

The next reform was in 1862, when an amending act was passed providing that no building to be used as a dwelling could be erected on the side of any new street of a less width than 50 feet, which exceeded in height the distance across the street from house to house, unless with the written consent of the board of works. While this rectified the open space, in a measure, in front, nothing was done for the rear. In 1882 an amending act made the following provisions for rear open space: Frontage of building not exceeding 15 feet, open space at the rear 150 square feet; not exceeding 20 feet, the minimum space at the rear 200 square feet; not exceeding 30 feet, the minimum space at the rear 300 square feet; exceeding 30 feet, the minimum space at the rear 450 square feet. There should be no buildings erected on this space higher than the level of the ceiling of the ground floor story, and the space should extend throughout the entire width of the building. This provision had reference to buildings built after 1882, not to those constructed previously.

The act of 1882 is the one which is still in force in London, notwithstanding the recommendation of the royal commission on the housing of the working classes, in 1885, that in the rear of every new dwelling house, whether in old or new streets, there should be provided a proportionate extent of space belonging exclusively to it, to be free from erection of buildings thereon from the ground level upward, that the space extend laterally throughout the entire width of the dwelling house, that for the distance across the space from the building to the boundary of adjoining premises a minimum should be prescribed, and that this minimum should be increased with the height of the dwelling house or building. The London county council, in the case of the Boundary street area in Bethnal Green, among the requirements for buildings to be erected on the land, laid down the following conditions:

1. That blocks of dwellings should not exceed 40 feet in height.
2. That parallel blocks should be separated from each other by an open space, clear from the ground, of at least 40 feet in width.
3. The new streets must be 40 feet in width, and the blocks run almost due north and south, so as to admit the maximum amount of light to all the tenements equally.
4. Courtyards between the blocks are to be left entirely open at each end, and unobstructed by cross buildings.



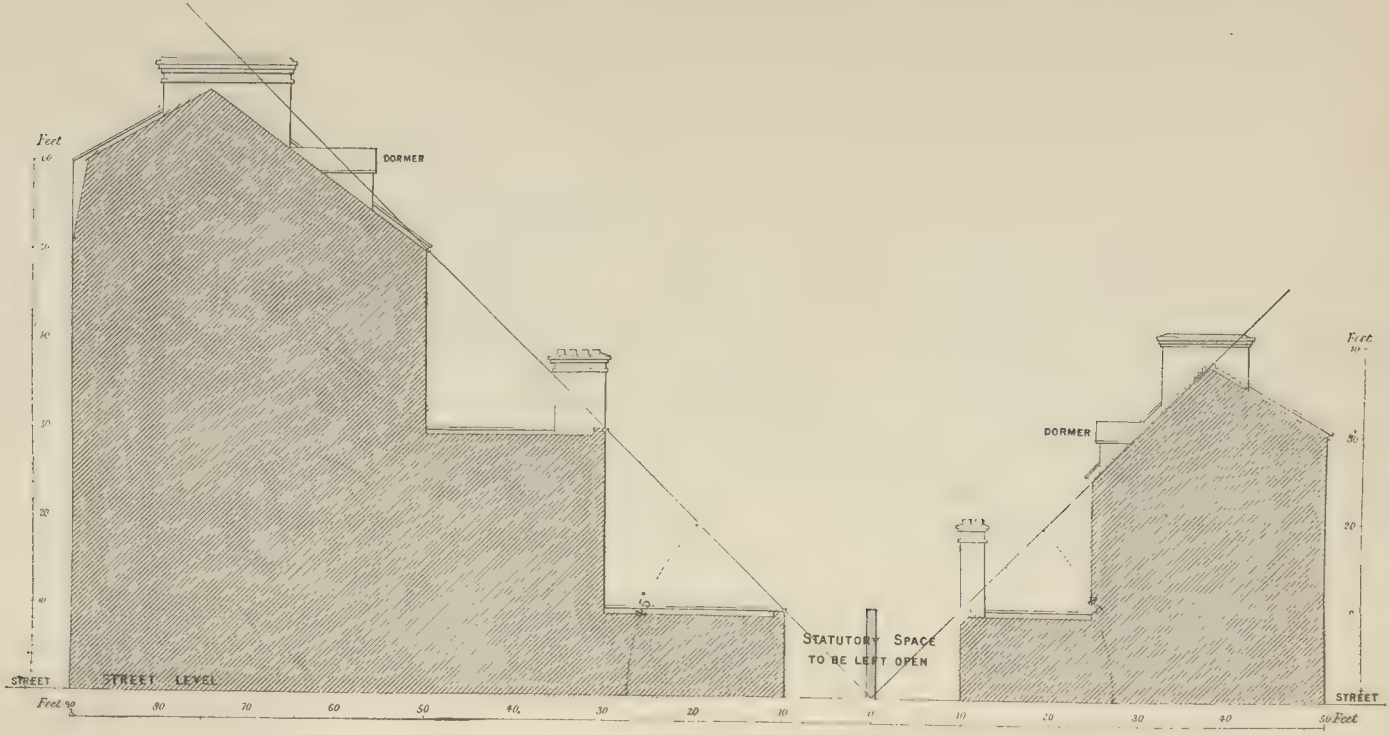
LONDON COUNTY COUNCIL ARTISANS' DWELLINGS, LONDON, ENGLAND—SELF-CONTAINED TENEMENTS.

PLAN NO. 3.



LONDON COUNTY COUNCIL ARTISANS' DWELLINGS. LONDON, ENGLAND—ASSOCIATED TENEMENTS.

PLAN NO. 4.



PROPOSED PLAN OF REGULATING THE OPEN SPACES IN THE REAR OF DWELLING HOUSES IN LONDON, ENGLAND.

PLAN No. 2.

Land sold under these conditions can not, of course, bring a very good price; but Dr. Parkes makes the point that it is better that the scheme should cost a great deal to the ratepayers of this generation in order that future generations may not have to pay a further price for the sanitary neglect of the present.

The building regulations of London have been so defective that it would have been possible to cover 82 per cent of the sites with buildings and create a density of population equal to 1,560 per acre, with a percentage of uninhabitable rooms equaling 40 per cent. Wherever building land is available the question of overcrowding on space is likely to come up. It may be interesting, therefore, to know, from the accompanying diagram (plan No. 2), the proposed method of regulating open space in the rear of dwelling houses in London.

The general principle of the plan is that an open space, free from any building, 10 feet in depth throughout the entire width of the building, is left at the rear. The remainder of the ground may be covered with any buildings, provided no part of them, except the chimneys, pass above a line drawn at an angle of 45 degrees from the rear toward the house. This is a most excellent requirement, for it treats houses, whether large or small, in proportion to their size. The plan is also adopted in Liverpool.

There has apparently been no general building act passed by Parliament. The report of the building act committee of the London county council for the year ending March 31, 1893, says:

> No bill has yet been introduced, but the committee is in hopes that the subject will be taken up by the government during the next session of Parliament. Meantime the committee has had many suggested amendments of the law under consideration, and will in due course report thereon to the council.

The two latest plans adopted by the London county council for housing the poor people on the flat system are shown in the accompanying sketches (plans Nos. 3 and 4). The first provides self-contained dwellings and the second is constructed on the associated plan. The latter will cost about 14 per cent less per room than the former.

There is through ventilation from the front to the back, and unobstructed light. In the self-contained tenements there are no passages. There are separate scullories, with a sink under the window, and a copper boiler for washing. The water-closet is approached through a disconnected lobby open to the external air. In the associated tenement the corridor has rooms on one side only and the sanitary accessories are grouped together.

These buildings are constructed with a space between them equal to the height of surrounding buildings, and are arranged so that each room receives sunlight. Both constructions are absolutely fireproof. They are estimated to produce a net return of 3 per cent. These plans were prepared by Mr. Thomas Blashill, and they are significant as rep-

resenting the method upon which the London county council is about practically to undertake the housing of the poor in certain expropriated areas.

The London county council, as the successor of the metropolitan board of works, obtained the franchise for building the Blackwall tunnel under the Thames. Much property was expropriated, and a great many dwellings of working people demolished in order to secure a proper approach to the tunnel. Under the law the council is compelled to provide for at least one-half of the persons displaced. The land was first offered to private building companies at a low rate. They refused, however, to accept the terms. Whenever the London county council disposes of land for dwelling purposes, regulations are made for the new construction; and supervision, while building is going on, is committed to an employee designated clerk of the works. Other buildings are inspected by district surveyors before they can be opened for use. The latter officials are paid by fees, which vary with the number and character of the buildings. Being to an extent dependent upon the good will of the builder as regards amount and payment of their fees, they are unduly tempted to be lenient. The clerk of the works, however, is not dependent upon the builder, and besides is constantly on the ground. He makes his report to the chief supervisor of buildings.

The regulations to which private building companies object are:

1. Staircases must be 4 feet wide.
2. Dwellings must not be higher than four stories.
3. Ceilings must be 9 feet high.
4. Comparatively severe requirements regarding light and air spaces.

The council consider, however, that the real reasons for their refusing to build on land owned by the county council are the careful supervision maintained by its clerk of the works in reference to construction and materials used, and also the requirement that men employed must be paid union rates of wages. The latter stipulation, it is said, will enhance the cost so that, considering also the better borrowing powers of the public body, private companies would be at a disadvantage. Both the county council and the building companies look forward to a compromise.

Regulations adopted by the London county council for building houses for working people upon its own land contain the following prescriptions:

Staircases.—A central staircase in blocks of dwellings is objectionable, and as regards convenience of plan and thorough ventilation of each dwelling, the best amongst the modes commonly in use is that which provides a staircase close to the outer wall, and having large openings communicating with the open air. Such a staircase can be conveniently arranged to give access to four dwellings, and the ventilation of such dwellings can be effected by means of open doors and fanlights, so that a thorough current of air can be obtained when it is desired. If it is felt in the winter time that this arrangement leaves the persons using the staircases too much exposed to the weather, windows partially enclosing the openings can be provided.

The chief alternative to this kind of staircase seems to be one which is in the center of the block, and gives access to dwellings on each side of it. In this case the ingress of fresh air to the staircases can only be through the entrance doorway and along a short passage, and through the skylight at the top of the staircase. Upon this the dwellings opening from the staircase have to depend for their through ventilation.

Both these plans are in considerable use.

Staircases in buildings more than three stories high should be at least 4 feet in width. The walls of the staircases to a height of about 4 feet 6 inches should be finished with glazed or hard-pressed bricks; the upper portions with hard bricks neatly pointed.

Basement floors.—There is no doubt that, as compared with the other floors of a building, the basement floor is undesirable as a residence, but in building artisans' dwellings it is generally expedient to construct a story below the ground floor, though it is not necessary that they be used as dwellings; but inasmuch as there is no definite evidence at the present time that basement rooms, fronting upon a principal street, should not be used for dwelling purposes, their use need not be forbidden, provided that adequate precautions against fire are taken, and that the bottom of the window sills is not lower than the level of the adjoining pavement, and not more than 3 feet above the floor, and that in other respects they agree with the provisions of section 103 of the metropolis local management act, as applied to new buildings.

They are usually let at a rate materially lower than the rooms above them, but if they are let at the same rate as the upper floors in a high block of buildings, they are preferred by many people who are not able to mount a considerable number of stairs. Beyond the question of health, it is not necessary to object to such rooms on account of their proximity to the street, those who occupy them being able to make such arrangements for privacy as they find necessary.

Where no areas are practicable, the walls should be covered with asphalt or other damp-resisting material, from the damp-course to the footings.

Bathrooms, etc.—Unless they are in close vicinity to public baths and wash houses (a condition which can very rarely happen), bath and wash house accommodation should be provided to every block of dwellings, and this can best be provided in a separate building or on the basement floor, or in a distinct section of the block that can be constantly under inspection, and to which inexpensive arrangements for water supply, etc., can be applied.

In connection with this matter, the water closet accommodation has been considered, on the assumption that the dwellings to be built or promoted by the council will generally be for the accommodation of the lowest class of the population which inhabits separate tenements, a class just above that which uses the common lodging houses, and for which neither private speculators nor the societies for building artisans' dwellings make any provision. It seems inexpedient that either water-closets or separate water supply or sinks should be constructed so as to be immediately accessible from any dwelling rooms. A sufficient number of closets should be supplied to each floor of dwellings to which a separate staircase is provided, together with a provision of sinks and water supply for common use. Such closets should have both doors and windows opening directly to the open air; and where possible, there should be one closet to each family.

Dust shoots should be provided from each common scullery, or from the landing adjacent, to discharge into galvanized iron movable dust bins, which can be carried out and emptied into the dust cart.

Size of rooms.—The number of rooms to be provided in each tenement, and their sizes, have been considered as one question, and the following may be regarded as minima:

1. In a one-roomed tenement the minimum superficial area should be 144 feet. This would conveniently be provided in a room measuring about 12 feet by 12 feet.

2. A two-roomed tenement should have a similar room, with an additional room containing 96 superficial feet, or measuring 12 feet by 8 feet.

3. A three-roomed tenement should have a large room containing 144 feet in superficial area, and two rooms each containing 96 feet.

These sizes, however, should not be rigidly fixed, but rooms of various sizes should be provided. Four-roomed tenements need not be provided, but if they are, the fourth room should be of about 100 feet superficial area.

It would be convenient as regards planning, and also as regards the population to be accommodated, that some little variety should exist in the sizes of the rooms in each tenement as well as in their number, in order to provide for the different conditions of the families.

The standard height for every room should be 9 feet. The walls of the rooms should be finished in some hard material, for which purpose Portland cement upon brickwork, or brick with pressed face on both sides, should be used up to a height of about 3 feet 6 inches. The upper parts of the walls can be finished by a thin coating of hard plaster upon brickwork, but upon this point some further inquiry is desirable.

In designing the buildings, some care should be taken to give a pleasant appearance to them.

As regards the interval which should exist between any block of dwellings and the nearest building obstructing the light from its windows, it is suggested that, if practicable, this distance should be equal to one and one-half times the height of the obstructing building. But it does not appear that this space can, in view of the cost of land, be generally provided. Under no circumstances should a nearer distance than the height of the buildings be allowed.

MANCHESTER, ENGLAND.

As it is the main purpose of this work to select models rather than to present a variety of conditions, the requirements of Manchester, which are believed to be among the most advanced of any city in the United Kingdom, are selected for special analysis.

The original by-laws with respect to new streets, buildings, etc., were passed in 1890. They were subsequently revised by the proper subcommittee in 1894, and as amended received the sanction of the local government board. The width of side streets is fixed at a minimum of 36 feet. Back alleys to be used for removing contents of privies or ashpits must be at least 9 feet wide, and communicate directly with a street. These alleys may not be more than 100 yards long without making connection either with another street or alley.

New buildings may not be built upon sites which have been filled in with impregnated material—that is, material impregnated with fœcal, vegetable, or animal matter—without such matter having been excavated or removed. Where the site shows any indication of dampness the ground surface must be properly asphalted or covered with cement or concrete at least 6 inches thick. External walls must be of brick, stone, or other hard, incombustible materials. The mortar used must be of good lime and clean, sharp sand, in proportion of two-thirds of the latter to one-third of the former, or with good cement, or with good cement mixed with clean, sharp sand. Exception is provided in the case of dwelling houses more than 15 feet from any adjoining building, when the external walls may be constructed of timber framing, with the spaces filled in completely with brickwork or other incombustible material. There must also be brickwork 4½ inches thick placed at the back of every portion of timber, and properly bonded to the brickwork filling the spaces between the timbers.

Where a new building forms part of a block of dwelling houses, not more than three in number, and where each is separated by not less than 15 feet from adjoining buildings not in the same curtilage and not forming part of the same block, party walls supporting the buildings must project 1 inch in front of the timber framing. Otherwise the provisions as to timber framing, filling, etc., are the same as in the preceding cases. Hollow walls are allowed on the exterior if constructed so that the width of the interior cavity does not exceed 3 inches, and that the inner and outer parts of the wall are tied together with suitable bonding ties of galvanized iron, glazed stoneware, or other suitable material, distributed in rows not more than 18 inches apart vertically and 3 feet horizontally. The materials for cross walls must be of good brick, stone, or other hard and incombustible materials, bound together with mortar, cement, or a mixture of cement and sand. Every wall must rest upon footings constructed in regular offsets, the projections of which shall be at least 9 inches on each side of the wall and the height not less than 12 inches. Where the walls are less than 18 inches thick the projection may be half the thickness on each side, but in height two-thirds of the thickness of the wall. Where an adjoining wall interferes with the projection of the footings on one side that projection may be omitted. The footings must rest on solid ground, or concrete, or some other solid and sufficient substructure. There must be a damp course to every wall of sheet lead of a certain specified weight, asphalt half an inch thick, slates laid in cement, or other durable material impervious to moisture, beneath the level of the lowest timbers and at the level of the surface of the ground adjoining such wall. Where the floor of the lowest story of a dwelling house is below the level of the adjoining ground which is immediately in contact this story must be inclosed with double walls having an intervening cavity extending 6 inches above the surface of the ground, being at least 2¼ inches wide and properly ventilated. If the cavity is filled with

asphalt if need only be 1 inch wide. The parts of this double wall must be properly tied together with iron, vitrified stoneware, or other suitable material, inserted at distances apart not exceeding 3 feet horizontally and 18 inches vertically. There must be also a damp course of sheet lead, asphalt, slates, or other impervious material at the base of such wall, and likewise at the top of the cavity. The aggregate thickness of the two parts of the double wall, exclusive of the cavity, must be throughout not less than the minimum thickness prescribed for a wall of the same height and length, and belonging to the same class of buildings as that to which the double walls belong.

After fixing the regulations for measuring the heights of stories and walls, as well as the length of the latter, regulations for the thickness of the walls of domestic buildings are set forth. Where the wall does not exceed 25 feet in height its thickness must be 9 inches throughout, if the length does not exceed 30 feet. If the wall is more than 30 feet long the prescribed thickness is 14 inches for all stories except the top, which must have a wall 9 inches thick. The thickness for walls between 25 and 30 feet in height, and not exceeding 35 feet in length, is 14 inches for all stories except the two topmost, and 9 inches for them. Where the wall is longer than 35 feet, and not more than 30 feet high, the 14 inch limit for width applies to all except the topmost story. Where the wall is between 30 and 40 feet in height, and not more than 35 feet long, the prescribed thickness is 14 inches, and 9 inches for the top story. Where longer than 35 feet, and between 30 and 40 feet in height, the prescribed width is 18 inches for the first story, 9 inches for the top, and 14 inches for the intervening space. Walls between 40 and 50 feet high must have the following widths: When not exceeding 30 feet in length, 18 inches for the lowest story, 9 inches for the highest, and 14 inches for the rest; when between 30 and 45 feet in length, 18 inches for the height of two stories and 14 inches for the rest; when more than 45 feet long, 22½ inches for the lowest story, 18 inches for the next, and 14 inches thereafter. When between 50 and 60 feet high, and not exceeding 45 feet in length, the walls must be 18 inches thick for the height of two stories and 14 inches for the rest; if more than 45 feet long, 22½ inches for the lowest story, 18 inches for the next two, and 14 inches to the top. Walls between 60 and 70 feet in height, and not longer than 45 feet, must be 22½ inches for the lowest story, 18 inches for the next two, and 14 inches for the rest; if longer than 45 feet the wall is increased in thickness in each of the stories below the two uppermost by 4½ inches. Between 70 and 80 feet in height, and less than 45 feet in length, the walls must be 22½ inches for the first story, 18 inches for the next three, and 14 inches for the rest; if longer than 45 feet the width is increased in each of the stories below the two uppermost by 4½ inches. Between 80 and 90 feet in height, and not longer than 45 feet, the walls must be 27 inches thick for the first story, 22½ inches for the second, 18 inches for the next three, and 14 inches

for the rest; if longer than 45 feet the increase in each of the stories below the two uppermost is 4½ inches. Walls between 90 and 100 feet high, and not more than 45 feet long, must be 27 inches thick for the first story, for the next two 22½ inches, for the next three 18 inches, and for the rest 14 inches; if longer than 45 feet the width is increased in each of the stories below the two uppermost by 4½ inches.

Every external and every party wall of any story, exceeding 11 feet in height and 30 feet in length, must not be less than 14 inches in thickness in all cases where the foregoing rules call for 9 inches. The requirements for cross walls are that they shall be at least two-thirds of the thickness prescribed for external or party walls of the same height and length, with a minimum thickness, however, fixed at 9 inches. Where the cross wall supports a superincumbent external wall it must have the same thickness as an external or party wall of the same height and length. Wherever external, party, or cross walls are constructed of stone, vitrified, or burnt material, the beds or courses not being horizontal, their thickness must be one-third greater than the specifications already noted. Party walls must be carried up to the roofing materials, the slates or other covering of the roof to be properly and solidly bedded in mortar or cement on the top of the wall.

Whenever openings in external walls in any of the stories are greater than one-half of the whole extent of the vertical face, piers of brickwork or other fireproof supports must be so disposed as to carry the superstructure. Piers of this kind must also be placed at the corner or angle of any street on which the building abuts. Openings in party walls are forbidden. Certain requirements as to beams exist which are designed to have an important effect in adding to structural solidity. Stopping walls of brickwork, concrete, or other fireproof material must be made between the joists at every floor and ceiling.

Chimneys must be built on solid foundations. Flues must be lined with fireproof piping 1 inch thick or pointed with good mortar; the outside, where it does not form part of the face of an external wall, must also be rendered wherever its brickwork is less than 9 inches thick. The thickness of brickwork about chimney flues is fixed at 4½ inches. The back of any chimney opening in a party wall of any room occupied as a kitchen must be 9 inches thick to the height of 6 feet above such chimney opening; the back of other chimney openings, from the hearth to a height of 12 inches above such opening, must be 4½ inches thick if such opening is in an external wall; 9 inches thick if elsewhere than in an external wall. The upper side of every flue running at an angle of less than 45 degrees must be at least 9 inches thick. The arches of flues must be supported by iron bars securely put into the wall. The minimum height of chimneys above the roof is 3 feet, and the maximum six times the least width of the chimney shaft. No timber or woodwork may be placed nearer than 9 inches to the inside of any flue, or within 6 inches of any hot-air opening, hot-

water or steam pipe. A wooden plug may not be driven into the wall nearer than 6 inches to the inside of any chimney opening. A smoke pipe may not run nearer than 14 inches to any combustible material.

The construction of gutters or eaves drops in every case is obligatory. Proper provision for fastening and overlapping of slates where they are used on the roof is made. There are detailed provisions covering the strength of rafters, purlins, and roofing supports which are too technical to bear repetition. The same may be said of supports of beams, joists, and supports of floors. As regards floors, whenever the clear bearing exceeds 18 feet, an iron or steel beam of proper size and strength must be used.

The height of dwelling rooms not used as sleeping rooms or sculleries is fixed at 9 feet. Nine feet is the minimum limit of height fixed also for sleeping rooms in any part of the house other than the attic. Attic sleeping rooms must be not less than 5 feet in height in any part, and two-thirds of the superficial area of the room must be of a height of not less than 9 feet. Eight feet is fixed as the minimum height of sculleries.

Cellars of dwelling houses, in every case, must be paved with hard material, impervious to moisture, and laid with a sufficient bed of good cement concrete, etc. The floor must also be sloped to a properly constructed channel leading to a trapped gulley grating outside the building so that waste water may be effectually carried off.

The minimum width of streets is, as has already been noted, 36 feet. At the rear of every new dwelling house, at least 150 square feet of open space, free from any erection thereon, must be provided; the width of the open space to be not less that 10 feet. Where the height of a dwelling house is 15 feet, a width of 15 feet is enjoined, where the dwelling house is 28 feet high, the width of the open space must be 20 feet, and where the dwelling house is 35 feet high and over, the width of the open space must be at least 25 feet.

A sufficient number of windows to secure ventilation must be constructed in the walls abutting on the open spaces. In the lowest story of dwelling houses, where the ground surface has been covered with asphalt or concrete, a ventilating space 3 inches wide is made under the floors; and a ventilating space 6 inches wide where no ground surface covering has been made. The system of ventilation recommended is through suitable and sufficient air bricks. Every habitable room must have at least one window opening directly to the external air; and the total area of window space, clear of sash frames, must be equal to one-tenth of the floor space of the room. Windows must be so constructed that they may be opened at least one-half; the opening in every case to extend to the top of the window. Special and adequate means of ventilation in rooms without a fireplace are required through an aperture or air shaft near the ceiling which shall provide a clear area of 1 square inch to every 60 cubic feet of space the room incloses.

New buildings can not be erected without the subsoil of the site being effectually drained wherever dampness is present. Subsoil drains must be trapped, and down spouts for receiving water from the roof and carrying it into a properly constructed drain must also be provided. Glazed stoneware or earthenware pipes are recommended as suitable material for drains. The lowest story of new buildings must be placed at a level above the sewer to allow the construction of a drain sufficient for the drainage of such buildings and provide the requisite communication with any sewer into which such drain may empty. If drains are adapted to carrying or conveying sewage they must have an internal diameter of not less than 4 inches, with a proper fall and with water-tight joints, and where necessary they must be laid on a bed of concrete. Drains may pass under buildings only where any other mode of construction is impracticable, and when they do so they must be laid in a direct line and 12 inches below the surface, completely embedded in concrete 6 inches thick all around. Inlets to drains must be properly trapped. Drains which directly communicate with any sewer must also be trapped. There may be no right angle junctions in drains, either vertical or horizontal; they must join another drain obliquely in the direction of the flow of such drain. Ventilation of house drains must conform to very stringent provisions. There must be at least two untrapped openings, one near the level of the surface of the ground communicating with the drains by means of a pipe shaft or disconnecting chamber, and situated as near as practicable to the trap. The opening must in every case be placed on that side of the trap which is nearer to the building. The second opening is obtained by carrying up at the farthest practicable point from that where the first one is situated a vertical pipe or shaft, run to such a height as to prevent the escape of foul air into any building in the neighborhood. Openings must be provided with suitable gratings or covers to prevent the introduction of any obstructing substance, and be so constructed and fitted that the free passage of air may take place. Ventilating shafts or pipes must have a sectional area of not less than one-half of that of the drain with which they communicate, and in no case a diameter of less than 4 inches. There must be neither bend nor angle in the shafts except where absolutely unavoidable. Where the soil pipe of a water-closet has been constructed in accordance with the requirements applicable to ventilating shafts last mentioned, it may be used for such purposes.

There must be no inlet to drains within buildings except from the apparatus of any water-closet. The soil pipe from every water-closet must be at least 4 inches in diameter, to be fixed outside the building and continue upward to a sufficient height above the roof. There shall be no trap between such soil pipe and the drains, or any trap in any part of such soil pipe, other than such as necessarily forms part of any water-closet apparatus. Waste pipes from sinks and lava-

tories, overflow pipes from cisterns, and every pipe for carrying off waste water, must discharge through an external wall of the building into the open air over a channel leading to a trapped gulley grating at least 18 inches distant. The waste pipes from slop sinks used for purposes of receiving any solid or liquid filth are subject to the provisions applicable to soil pipes from water-closets.

Water-closets or earth closets must be so constructed that one of the sides shall be an external wall. When within buildings they must be provided with one window not smaller than 2 feet by 1 foot, and opening directly to the external air. There must also be one or more air bricks built in the external wall of the closet, or else a special airshaft must be provided to furnish permanent ventilation. Water-closets must have a flushing apparatus of adequate capacity, and a water supply distinct from that for domestic use. They must have basins of non-absorbent material, and so constructed that whatever is deposited may fall free from the sides directly into the water. Containers and D-traps are prohibited. Earth closets are required to be supplied with movable receptacles, covered in to prevent exposure to rainfall or drainage from adjoining premises, and provided with an apparatus for supplying dry earth or other deodorizing substance in sufficient quantities. Where privies exist they shall not be constructed within 6 feet of a dwelling house, or 100 feet from a water supply for drinking or domestic purposes.

Every person who intends to erect a building must give the corporation notice of such intention, the notice to be sent to the city surveyor. At the same time, he must send to the city surveyor complete plans of such intended building, drawn on a scale of 1 inch to every 8 feet, showing the position, form, and dimensions of the several parts of such building, and whether it is intended to be used as a dwelling house or otherwise. The city surveyor must also be furnished a description in writing of the materials of which it is intended such building shall be constructed, and the intended mode of drainage and means of water supply. Such person must at the same time also deliver to the city surveyor a block plan of such building, drawn on a scale of 1 inch to every 44 feet and showing the buildings and appurtenances on immediately adjoining properties, the width and level of the street in front, at the sides, and of any street or passage at the rear; also the level of the lowest floor, and of any ground or yard belonging thereto. The lines of drainage, together with size, depth, and inclination of drains, as well as the details of ventilation, must also appear.

The yards or open spaces in connection with dwelling houses, to the extent of 150 square feet, must be properly paved with durable and impervious pavement, laid closely and evenly and sloped to a channel leading to a trapped gulley grating so as to carry off all rain and waste water. This pavement is to be so arranged that it shall adjoin the external wall in the rear or at the side of the house, and where practicable it shall extend throughout to a distance of 10 feet from said wall.

Every chimney opening must have a hearth or fireplace of stone, slate, bricks, tiles, or other incombustible material, 6 inches longer at each end than the width of the opening, and projecting not less than 18 inches from the chimney breast. The hearth is to be laid at the level of the floor upon stone or iron bearers, or upon a layer of good cement concrete at least 3 inches thick. If the hearth is fixed about timber work there must be concrete of not less than 4 inches between such timber work and the hearth.

The owner of habitable premises is obliged to make adequate provision for water with which to flush water-closets, and the occupier must see that the supply is kept up. This latter provision applies to all buildings in the city without exception, no matter at what time erected.

Buildings which have been constructed in accordance with by-laws made under the public health acts may not be altered in such a way that they would contravene the provisions of this act.

At least twenty-four hours' notice to the city surveyor must be given before sewers, drains, or foundations of buildings are covered up. Buildings in process of construction must be open to inspection at any time before completion. When finished, a written notice must be sent to the city surveyor, which shall at all reasonable times, for a period of seven days, afford him free access to such building for the purpose of inspection. Before dwelling houses may be let or occupied they must be certified by the proper officers to be in every respect fit for human habitation.

The penalty for the infringement of any preceding provision is fixed at £5 ($24.33), and £2 ($9.73) for each day of the continuation of the offense. Justices of the peace may mitigate the punishment somewhat by providing fines of a less sum. Work done in contravention of the by-laws may be altered, pulled down, or removed if after due notice the offending party fails to appear and show sufficient cause why such work should not be altered, pulled down, or removed. If there is a reasonable presumption that the provisions of the law have not been fully carried out, the city surveyor is authorized to have any work opened up in order to inspect it.

PARIS, FRANCE.

The building laws of Paris, as yet, pay hardly any attention to hygiene, but deal almost exclusively with security. Dr. A. J. Martin intends soon to organize a service to look after hygienic requirements in new houses.

The height of buildings bordering on public streets in Paris is determined by the width of the streets, and is measured from the sidewalk to the highest point of the front. The height can not exceed 12 meters (39.37 feet) for streets 7.80 meters (25.59 feet) wide, 15 meters (49.21 feet) for streets from 7.80 to 9.74 meters (25.59 to 31.96 feet) wide, 18

meters (59.05 feet) for streets from 9.74 to 20 meters (31.96 to 65.62 feet) wide, and 20 meters (65.62 feet) for streets above 20 meters (65.62 feet) wide. Buildings in any case may not comprise more than seven stories, not including the ground floor. The ground floor story must not be less than 2.80 meters (9.19 feet) in height. The height of the other stories and the basement must not be less than 2.60 meters (8.53 feet). In case of attics it is sufficient if the highest part is 2.60 meters (8.53 feet) in height. Courts of buildings not more than 18 meters (59.05 feet) high must have a surface of not less than 30 square meters (322.92 square feet) with an average width of not less than 5 meters (16.40 feet). In buildings more than 18 meters (59.05 feet) high, with wings not over 18 meters (59.05 feet) high, the courts are required to have a surface of at least 40 square meters (430.55 square feet) and an average width of at least 5 meters (16.40 feet); but if the wings also are more than 18 meters (59.05 feet) high, the courts are required to have a surface of at least 60 square meters (645.83 square feet) and an average width of at least 6 meters (19.69 feet). Small courts affording light and air to kitchens must have at least 9 square meters (96.88 square feet) of surface and an average width of 1.80 meters (5.91 feet). Small courts affording light and air exclusively to water-closets, vestibules, or corridors must have at least 4 square meters (43.06 square feet) of surface, and at no point be less than 1.60 meters (5.25 feet) wide. It is forbidden to construct glass roofs in courts above the parts to be supplied with light and air, no matter whether these are living rooms, kitchens, or water-closets, unless there be provided a ventilating window with vertical faces in which the opening shall be at least one-third of the surface of the court and not less than 40 centimeters (1.31 feet) in height, and unless there be constructed at the lower part openings of at least 8 decimeters (2.62 feet) square admitting air to the basement and cellars. Every builder, before commencing work, must send to the prefecture of the Seine a plan of the proposed buildings, and submit to whatever prescriptions may be imposed in the interests of public security and health. Twenty days afterwards he may commence building if he receives no notification to the contrary. A geological chart of the excavations for the foundation must be sent by building architects to the prefecture of the Seine. Fronts of buildings must always be kept in good condition. They must be scraped, repainted, or washed at least once in every ten years, under penalty of a fine not exceeding 100 francs ($19.30).

BRUSSELS, BELGIUM.

In Brussels the plans of all houses must be presented to the authorities and approved by them before structures can be built. The ceilings must be 9½ feet high, a regulation which recalls the time-honored practice of Scotch cities in insisting on 10 feet. With the greatest difficulty the authorities of Glasgow have recently succeeded in reducing the minimum to 9 feet.

BERLIN, GERMANY.

In Berlin building may not be done in advance of the sewerage of land. Purchase at a reasonable price can only be made before the city completes the canalization.

The following is a digest of the building regulations enforced in the German capital, the first chapter of which embraces municipal requirements and restrictions:

1. *Communication with the street.*—As a rule buildings should be erected only on such plots of ground as border on a public street. Fronts of buildings must be erected on the building line or parallel thereto. Buildings erected on a line situated more than 30 meters (98.43 feet) back of the building line must have their wings or their rear buildings connected by an alley of at least 2.30 meters (7.55 feet) width in the clear, or by a passageway through the front building of at least 2.80 meters (9.19 feet) height in the clear and 2.30 meters (7.55 feet) width in the clear.

Special permits must be obtained from the municipal government for the erection of buildings on plots of ground not bordering on a public street, or where the rise in the rear of the building line exceeds a ratio of 1 in 20, or where the buildings to be erected are of a greater depth than 50 meters (164.04 feet.)

2. *How much ground may be covered by buildings in a plot of ground—Court or yard room.*—Plots of ground that never were used for building purposes may be covered by buildings up to two-thirds of their extent, such as were formerly covered may be covered (namely, rebuilt upon) to three-quarters of their extent.

Courts or yards of at least 60 square meters (645.83 square feet) must be provided, the smallest dimension to be not less than 6 meters (19.69 feet), and so distributed that the buildings between the various courts do not exceed 18 meters (59.05 feet) in depth. In the case of a corner lot the court may be reduced to 40 square meters (430.55 square feet). Existing courts in those lots, however, can not be reduced to less than 60 square meters (645.83 square feet). Plots of ground now improved by buildings covering more than three-quarters of the area, may in case of rebuilding be used again to the same extent as before.

In the case of rebuilding on a plot of ground which extends to a depth of less than 15 meters (49.21 feet) in the rear of the building line court or yard space need not be allowed if the fronting street is at least as wide as the building to be erected is to be high, and if all rooms intended for habitation derive light and air exclusively from the street, provided that the window surface is equal to at least one-seventh of the floor space. Fronts of rear buildings, or side wings or the rear wall of the main building (if provided with windows), must face an open court.

3. *Height.*—All buildings may be erected in the front to a height of 12 meters (39.37 feet) and not more than 22 meters (72.18 feet).

a. Buildings on streets may be constructed as high as the street is wide between the two building lines. Extensions from the roof, such as cornices, etc., if exceeding 50 centimeters (1.64 feet) must be deducted from the height. In streets where buildings are to be erected on one side only the height may be carried to 22 meters (72.18 feet). If the width of the street is variable, or if the building fronts on several streets, a mean height should be adopted for it, unless it should be preferred to give the building various heights, according to frontage. Front buildings standing entirely or partly in the rear of the regular building line may, in exceptional cases, be erected to a greater height.

b. Rear buildings and side wings facing a court must not exceed in height the dimensions thereof by more than 6 meters (19.69 feet); if the court is irregular in shape an average height must be established.

Buildings covering a surface of not more than 40 square meters (430.55 square feet) and reaching a height of not more than 5 meters (16.40 feet) do not enter into consideration when the permissible height of the front walls of the rear buildings or side wings is being determined.

c. In those cases where a rebuilding on more than three-quarters of the area of the plot is contemplated the height of 14 meters (45.93 feet) must not be exceeded.

A greater height, exceeding 14 meters (45.93 feet), which, however, must not surpass the height of the buildings to be torn down and will also conform for the parts fronting on the street to the restrictions laid down in paragraph *a* of this section may be permitted on condition that in such buildings only such rooms shall be set apart for purposes of permanent habitation by human beings as derive a sufficient supply of light and air from the court. The floors of these rooms must be placed at an elevation equal in extent to the width of the court, and this measurement is to be taken from the top plate or attic floor of the building. [It is apparent from this that the wider the court is the lower down the floors of living rooms may be laid, namely, if the court is 20 feet wide, the lowest floor for living rooms can not be lower than 20 feet downward from the top plate. Should the court be 30 feet wide, the floors may be laid at a distance of 30 feet, measuring downward from the top plate.]

d. In rebuilding, the former height of the building may be allowed if it does not exceed 22 meters (72.18 feet).

In using the term "height" it must be understood that all elevations are calculated from the surface of the sidewalk or the court pavement close to the building up to the top edge of the main cornice. Where there is an inclined plane either of the sidewalk or the court, the height shall be determined by an average measurement between the highest and the lowest point.

Roofs shall not have a greater pitch than 45 degrees. Towers, gables, dormers, etc., must not exceed in height one-fifth of the height of the building and not occupy together more than 5 meters (16.40 feet) in width. This regulation applies to fronts facing the street.

4. *Distance between buildings.*—There must be a free space left between all buildings not immediately adjoining, as follows: A space of at least 2.50 meters (8.20 feet) in width where the opposite walls have no openings; a space of at least 6 meters (19.69 feet) where there are openings in the opposite walls.

5. *Massive walls*—(*a*) *In general.*—Main inclosing walls, walls carrying heavy weights, and all projecting structures must be erected massively, unless excepted by sections 6 and 7.

Stairways (see also section 14) must be inclosed within massive walls, which shall not have more openings than are absolutely necessary for purposes of communication and lighting. In the case of adjoining stairways, no communication between them shall be allowed in the partition wall.

In the interior of buildings massive fire walls must be built at a distance of not more than 40 meters (131.23 feet) from each other, not less than 25 centimeters (9.84 inches) thick, extending throughout the whole depth of the building, running through every story, and extending at least 20 centimeters (7.87 inches) above the roof; communicating openings in the garret lodgings must be provided with self-closing iron doors.

In exceptional cases—that is to say, in cases where the particular uses for which the building is intended would be interfered with by such walls—their erection may be omitted.

(*b*) *On adjoining properties in particular.*—If buildings are erected up to the neighboring limit line, or where the distance therefrom is less than 6 meters (19.69 feet), such buildings must be provided with fire walls constructed as detailed in paragraph *a* of this section, and no openings will be permitted therein. For obtaining light in the interior of a building, openings measuring not more than 500 square centimeters (77.50 square inches) and closed with walled-in glass plates of at least

1 centimeter (0.39 inch) in thickness may be permitted, provided that not more than one of these shall occur in every 3 meters' (9.84 feet) wall length in every story.

Neighboring buildings which join on the limit line must each be provided with a boundary wall erected according to the foregoing regulations.

In exceptional cases communicating openings between the neighboring buildings may be permitted, but then they must be provided with self-closing iron doors.

6. *Brick-nogged buildings.*—Buildings not exceeding a length of 12 meters (39.37 feet), a depth of 8 meters (26.25 feet), and a front height of 6 meters (19.69 feet) may be brick-nogged instead of erected with massive walls.

The inclosing walls of brick-nogged buildings, if situated less than 6 meters (19.69 feet) from public streets, from the limits of neighboring property, or from other buildings on the same plot of ground, must be covered by a cement facing, massively put on, to a thickness of at least 12 centimeters (4.72 inches).

Beyond the foregoing regulations permission for the erection of brick-nogged buildings shall be given only in exceptional cases and for temporary use. In these cases brick-nogged buildings may be erected at a distance of at least 6 meters (19.69 feet) from each other.

7. *Wooden structures.*—Only sheds, booths, and similar structures, which can not be regarded as habitations proper, may be erected with wooden inclosing walls.

They should, as a rule, not exceed a surface of 25 square meters (269.10 square feet), a front height of 3 meters (9.84 feet), and be separated from other wooden structures, neighboring limits, or public streets by a distance of at least 6 meters (19.69 feet).

Beyond this the erection of wooden buildings will be tolerated only in exceptional cases and for transient purposes. Fireproof covering or cementing of the outer walls may be prescribed.

8. *Partition walls.*—Wooden partition walls in the interior of buildings must be covered with a coat of plastering or protected in some other efficient manner against transmission of fire. Hollow spaces between wooden partition walls must be filled with some incombustible material. Partition walls in garrets and cellars need not be plastered.

9. *Ceilings.*—Counter ceilings must be made and the space between the joists filled with incombustible material to a thickness of at least 13 centimeters (5.12 inches); the under side may be plastered or covered with some other equally fireproof material.

The material used for filling in between joists or in vaults must not be contaminated by any organic substance deleterious to health, and particularly is the use of rubbish of any kind from buildings prohibited.

Other ceiling constructions must correspond in an equally efficacious manner to the demands of security against fire and to the requirements of hygiene.

Ceilings constructed in accordance with these regulations may be lined with wooden parquetry.

In buildings without fireplaces the ceilings may be made of unplastered woodwork.

10. *Roofing.*—The roofs of all buildings, including all wooden constructions (see section 7), must be covered with some material which will not permit the transmission of fire (stone, metal, tar paper, wood cement, glass, etc.).

Openings in roofs, so far as they relate to the neighboring limits, are subjected to the same regulations that govern openings in the inclosing walls (see section 5 *b*). This requirement, however, does not apply to light shafts.

According to the condition and position of the roofs, the right to prescribe additional regulations against the falling off of ice and snow is reserved.

11. *Projecting parts of buildings.*—Projections extending beyond the inclosing walls and the roofs are subject (as far as the material is concerned) to the same regulations that govern the inclosing walls and the roofs themselves.

Roof cornices, however, may be made of wood, provided that up to 1 meter (3.28 feet) distance from a neighboring building fireproof material is used.

Ornaments made of stucco, statuary pasteboard, cement castings, etc., are not allowed to be fastened against wood on the outer fronts, but must be securely united with the masonry.

Projections of roof constructions beyond the cornices will be permitted only when absolutely safe.

12. *Projections of individual parts beyond the building line*—(*a*) *On sidewalks.*—The projection of parts of the building onto the sidewalk and up to a height of 3 meters (9.84 feet) above it is not permissible, unless a space of 3 meters (9.84 feet) sidewalk at least is left for passers. But a projection of plinths up to 13 centimeters (5.12 inches), including moldings, may be allowed on such sidewalks even that do not attain a width of 3 meters (9.84 feet).

Stair steps may extend up to 20 centimeters (7.87 inches) into the sidewalk, if the latter is more than 4 meters (13.12 feet) wide.

Doors, windows, and shutters must not open outward onto a sidewalk. This holds good up to a height of 3 meters (9.84 feet).

Balconies and oriel windows facing on streets with sidewalks may be constructed for the upper stories only, provided that the street is more than 15 meters (49.21 feet) wide, and that a clear space of at least 3 meters (9.84 feet) in height is left, measuring from the surface of the sidewalk to the underside of the balcony or the oriel.

In so far as projections on or above sidewalks are not absolutely prohibited herein, it may be permitted, after due consideration of all the circumstances, that balconies and oriel windows project not more than 1.30 meters (4.27 feet), cellar necks 30 centimeters (11.81 inches) at most, and all other projections not more than 60 centimeters (23.62 inches) beyond the building line.

(*b*) On streets where the building lines are some distance back of the sidewalk projections may be constructed exceeding the dimensions laid down in paragraph *a* of this section, but not more than 2.50 meters (8.20 feet), provided that the front yard is laid out and kept as a garden.

(*c*) Oriel windows and similar closed projections must not occupy a length greater than one-third that of the building.

All projecting constructions extending more than 30 centimeters (11.81 inches) beyond the building line must be kept separated from neighboring properties by a distance equal to at least one and one-half times the distance of the projection.

13. *Openings in the front of buildings.*—Light openings for cellars will be permitted on such sidewalks as are over 3 meters (9.84 feet) wide. These openings must not project more than 30 centimeters (11.81 inches). They are to be provided with iron bars placed not more than 3 centimeters (1.18 inches) apart, or are to be inclosed by a smooth metallic grating at least 1 meter (3.28 feet) high.

Cellar steps must never project into the sidewalk.

In buildings not touching sidewalks all openings must be equally well covered or provided with bars or gratings.

For construction of areas, see section 37.

14. *Stairways.*—Any building in which the floor of the uppermost story is higher than 2 meters (6.56 feet) above the ground level must be provided with at least one stairway, which may, however, be constructed of wood. Any building in which the floor of the uppermost story is higher than 6 meters (19.69 feet) above the ground level must be provided with at least two stairways, located in separate parts; or it may be provided with one stairway only, if made fireproof. Should the uppermost floor be at a height of more than 10 meters (32.81 feet), then can a permit for one stairway, even if fireproof, be granted only in exceptional cases.

Stairways must be so situated that the greatest distance from any point does not exceed 25 meters (82.02 feet).

For buildings in which some stories are divided up for separate lodgings (flats) separate regulations are given in section 37.

All necessary stairways built in accordance with these building regulations must be in direct connection with the localities for which they are destined, must lead securely in a width of at least 1 meter (3.28 feet) through all the stories, and must admit daylight freely through their whole extent.

All stairways must be provided with protecting railings.

In the topmost floor a further fireproof and separate communication with the attic must be provided from each necessary stairway.

Only such stairways shall be considered fireproof of which the supporting parts, the steps and the risers, are built either massively or are made of iron.

Steps may be covered with wood if they are massively built or made of unperforated iron.

Necessary wooden stairways must be reeded and plastered on the underside or covered with some other equally fireproof material. No wooden closets will be allowed underneath such stairways.

The width of the landings, as well as of the entries of stairways, must never be less than the width in the clear of the stairway itself.

15. *Light and elevator shafts, ventilation flues.*—Light shafts must measure at least 6 square meters (64.58 square feet) of ground surface, with the smallest dimension of not less than 1.50 meters (4.92 feet) inclosed to the roof by massive walls, and must be provided at the bottom with some contrivance by which a current of fresh air may be obtained from some adjoining court, etc., and constantly supplied.

Should the light shaft be covered with glass at its upper extremity, then must a similar contrivance be provided which will insure a sufficient change of air.

It will be sufficient to make light shafts of corrugated iron or some other incombustible material, if they have to admit light only into one room directly through the ceiling; it shall also be permitted in such cases to reduce the dimensions of the shafts.

Elevator shafts must be inclosed by massive walls throughout their whole extent, the same as light shafts, while all flues and conduits which serve for the purpose of ventilation only may be run between walls lined with metal plates, or the flues, conduits, pipes, etc., may be surrounded with some incombustible material.

Openings of these shafts in the garret must be closed with iron doors.

16. *Fireplaces.*—Fireplaces in buildings must be constructed in a fireproof manner in all their parts.

Ceilings and floorings under the hearths must be constructed throughout of incombustible materials.

Other fireplaces, not resting on a thoroughly fireproof foundation, must be separated from it by a solid layer of cement at least 5 centimeters (1.97 inches) thick, above which must remain a hollow space at least 5 centimeters (1.97 inches) high to allow the passage of air.

Open fireplaces are to be covered with fireproof materials. Openings leading into fireplaces must be provided with appropriate closing contrivances.

Floors in front of fireplaces must be protected in a fireproof manner to a distance of at least 50 centimeters (19.69 inches) extending into the room, and to a distance of at least 30 centimeters (11.81 inches) to each side of the opening.

In the case of room-heating contrivances of ordinary dimensions, metallic guards may be adopted instead of the foregoing. In the case of open fireplaces a lining all around and projecting 50 centimeters (19.69 inches) is required.

Fireplaces made of stone or tile must be separated by a space of 50 centimeters (19.69 inches) from any woodwork covered by plaster or cement. In the case of iron fireplaces these distances must be at least doubled.

If the erection of fireplaces of large dimensions is intended (large cooking ranges, laundry appliances, etc.) the public authorities will issue the necessary regulations for rendering the walls, ceilings, and floors fireproof.

17. *Smoke flues.*—The smoke is to be conducted through tight and fireproof flues within the respective stories laterally into the chimney. As a support for these flues none but fireproof materials must be used.

The smoke flues must be kept at a distance of 50 centimeters (19.69 inches) from plastered woodwork and at a distance of 1 meter (3.28 feet) from uncovered woodwork.

If the smoke flues are covered or other protecting appliances adopted then these distances may be reduced.

All smoke flues must be provided with arrangements permitting the necessary cleaning.

In heating stoves in inhabited rooms or rooms destined for permanent occupation by human beings, closing appliances which may impede the escape of the fire gases are strictly prohibited.

18. *Chimneys.*—Chimneys are to be constructed throughout in a fireproof manner. They must rest on fireproof foundations.

Chimneys must have an even rectangular or circular opening, measuring at least 250 square centimeters (38.75 square inches), and must extend at least 30 centimeters (11.81 inches) above the roof.

Chimneys intended for the admission of chimney sweeps, etc., must be rectangular and measure from 42 to 47 centimeters (16.53 to 18.50 inches) in the flue. Should larger dimensions be adopted, provision of climbing irons will be considered indispensable.

Any other than a vertical direction in a chimney will be permitted only in cases where the chimney is surrounded entirely by massive walls, or where arches or iron bearers of adequate strength have been provided.

The sides of a chimney must have a thickness of at least 12 centimeters (4.72 inches); those bordering on neighboring property a thickness of at least 25 centimeters (9.84 inches).

For chimneys attached to a central heating apparatus or other large heating plants, the authorities may prescribe a greater thickness of the sides.

In the case of contiguous chimneys a separating side of the indicated dimensions will be considered sufficient.

Chimneys must be plastered or cemented on the outside; the inside must be smoothly pointed in the joints.

Chimneys whose sides have a thickness less than 25 centimeters (9.84 inches) must be kept at a distance of at least 10 centimeters (3.94 inches) from timbers and other woodwork, or be separated therefrom by a double layer of roofing tile.

Chimneys not constructed of masonry must be inclosed by masonry walls, when the same regulations concerning the fireproof condition will apply, or must be surrounded to a thickness of at least 10 centimeters (3.94 inches) in a fireproof manner; in such cases an air space must be left.

Isolated chimneys detached from buildings, as well as extension pipes for lengthening chimneys, do not require to be walled in or covered; this may, in exceptional cases, also be omitted in cases of fireproof workshops whose ceiling is at the same time the covering roof of the building; provided, however, that complete isolation from the woodwork of the ceiling is obtained.

All chimneys must be so constructed as to permit the passage of chimney sweeps, etc., throughout their whole extent, or must be so arranged that they may be thoroughly cleansed in all their parts from the outside.

Chimneys not admitting of the passage of chimney sweeps must, for the purpose of cleansing, be provided, in addition to the openings on top and at the bottom, with openings of sufficient size at all points where the direction changes, if the inclination to a horizontal line should be less than 60 degrees.

All lateral openings put in for the purposes of admission of chimney sweeps or for cleansing must be provided with iron sliding traps or hermetically closing iron doors.

Top pieces of any description will be permitted on chimneys only in cases where they do not interfere with the prescribed cleaning.

In chimneys of 250 square centimeters (38.75 square inches) transverse section in the clear, only three smoke flues pertaining to ordinary room stoves will be permitted to enter. Each additional smoke flue of similar description requires an addition of 80 square centimeters (12.40 square inches) to the transverse section of the chimney. If smoke flues of fireplaces of considerable extent are intended to enter, the authorities will issue further directions.

Chimneys must be so located and so used that no danger from smoke, soot, and sparks is to be apprehended for the buildings and their surroundings.

In kitchens with confined fires, that is to say, where the cooking is not done in open fireplaces, and where chimneys are narrow, special pipes allowing the escape of steam must be provided for.

Wall channels and conduits which may possibly be used as chimneys in the future are to be constructed in accordance with these regulations, even if the introduction of smoke flues is not contemplated for the present.

19. *Construction and material.*—Buildings must be constructed in all their parts in a secure manner and with suitable materials.

20. *Receptacles for offal and ashes.*—Receptacles for the temporary stowing away of household garbage and industrial offal must be made impermeable at the sides and the bottom, and be tightly and securely closable at the top. Receptacles for ashes must be made fireproof and provided with covers.

21. *Sewage.*—Wash and bath waters and fluid household slops must be conducted through impermeable pipes, gutters, or tubes into canals or street gutters.

In the case of properties, however, which do not border on the general city sewerage, household slops must be conducted through a securely grated pipe into a cesspool which shall be impermeable and provided with a stench trap.

22. *Privies.*—All excrements are to be conducted through pipes into the public sewers, or must be gathered in movable receptacles so as to be hauled away. In barrel privies the barrels must be surrounded by close walls and must stand on a smooth impermeable floor.

23. *Stables.*—In stables the floor must be covered with an impermeable material. Sufficient and appropriate receptacles for the reception of stable manure must be provided at a proper distance from the stable. No stable will be permitted to have any openings facing a public street.

24. *Water supply.*—On improved pieces of ground which have no connection with the city waterworks the establishment of private water conduits will be permitted, or wells may be dug which must supply a sufficient quantity of drinkable water.

25. *Supply and discharge pipes.*—All supply and discharge pipes in and on buildings must be made impermeable and fireproof. Those used for the discharge of unclean materials must also be provided with vent pipes extending above the roof.

The second chapter of the municipal building regulations, embracing sections 26 to 36, inclusive, refers solely to the control exercised by the building police when, *a*, new buildings are to be erected; and *b* and *c*, when alterations or repairs are to be undertaken. It embraces the subject of the necessary plans, drawings, and specifications which are to be submitted; to building permits; to notice to be given of the beginning of building operations; to scaffoldings and inclosures while building progresses; to security in the interior and for the vicinity during the erection of new buildings; to the safety of existing buildings; to the removal of the scaffolding; to plastering and cementing; to obtaining permits for outbuildings, and to the demolition of buildings.

The third chapter of the municipal building regulations covers special regulations concerning the intended use of buildings, and is as follows:

37. *Localities destined for occupancy by human beings—(a) Permanently occupied rooms.*—No more than five stories will be permitted in buildings intended for per-

manent occupancy by human beings, and the flooring of the top story must never exceed a height of 17.50 meters (57.41 feet) above the sidewalk.

All rooms intended for the purpose mentioned must be dry, and provided with windows of appropriate size and placed so as to admit light and air directly from the street or the court.

Rooms whose position or use requires that they be lighted directly from above may be provided with ceiling lights, if care is taken that a sufficient supply of air be obtained.

Rooms which are to be permanently occupied by human beings must have a height of at least 2.50 meters (8.20 feet), and must never be located more than 50 centimeters (19.69 inches) below the surrounding surface of the ground. This latter dimension may be increased to 1 meter (3.28 feet), however, if an area at least 1 meter (3.28 feet) wide is provided, the bottom of which is at least 15 centimeters (5.91 inches) below the level of the flooring, and if well drained.

In rooms intended for permanent occupancy by human beings and adjoining courts, floors sunk below the level of the surrounding ground will not be permitted, unless one of the dimensions of the court equals in extent the length of the buildings belonging thereto.

The flooring of rooms intended for permanent occupancy by human beings must be elevated at least 40 centimeters (15.75 inches) above the highest known level of ground water, and protected against humidity and vapors emanating from the soil by an impermeable massive groundwork.

The inclosing walls of such rooms must also be protected from rising ground humidity by being covered with some isolating material. If the floors of such rooms lie below the level of the surrounding ground then must the inclosing walls, where they rest directly on the ground, be likewise protected against the penetration of ground humidity, unless there should be an area in front.

Attic rooms can be permanently occupied by human beings when the regulations laid down in the first paragraphs of this section are complied with, when they are located directly over the top story, and when they are separated from the other parts of the attic by massive walls.

All buildings or parts thereof erected for permanent occupancy by human beings must be provided with a fireproof passage leading to two ordinary stairways or to one fireproof stairway.

All plats of ground on which there are buildings intended for habitation or other permanent occupancy by human beings must be adequately supplied with sewers, privies, discharge pipes, and wells or waterworks connections; these must be easy of access to all parties concerned, and must be constructed in accordance with existing regulations.

(*b*) *Localities used temporarily.*—Privies and bathrooms must be located so as to obtain light and air directly from the street or from a court or from a light shaft open on top and containing at least 10 square meters (107.64 square feet) ground surface, with a minimum dimension of at least 2 meters (6.56 feet). Privies will not be allowed underneath rooms intended for permanent occupancy by human beings.

Vestibules, passageways, and halls which are not in direct communication with the street, a court, or a light shaft of at least 6 square meters (64.58 square feet) ground surface must be supplied with special pipes of at least 250 square centimeters (38.75 square inches) in transvere section for the purposes of ventilation.

The provisions of the fourth chapter of the municipal building regulations are purely administrative and treat of permits to be issued in cases of alterations in existing buildings, changes in the limits of the property, exceptions, and fines and penalties.

NEW YORK CITY.

Prior to June 1, 1892, the inspection of the plumbing and drainage of all new and reconstructed buildings, and of the light and ventilation of tenement houses, was assigned to a division of the sanitary bureau of the health department. On that date this work was transferred to the newly created department of buildings, which represents a consolidation of these functions with those formerly exercised by the fire department. Hygiene and security have thus been brought under one control. Regulations for plumbing, drainage, light, and ventilation remain, with but slight changes, the same as before. The laws are said to be well enforced, inspectors often going to the very limits in their demands. The superintendent of buildings may make alterations in the regulations in the same manner as the board of health did previously. No tenement house can be erected until the plans for light and ventilation have been approved, nor can the plumbing and drainage of any building be executed until the plans have been approved by the department. The specifications for plumbing and drainage are exceedingly minute. They are given in detail in the following form, which must be filled out by all applicants:

SPECIFICATIONS FOR THE PLUMBING AND DRAINAGE OF THE BUILDINGS HEREIN DESCRIBED.

Location ———.
Number of buildings ———. Description of buildings ———.
Dimensions of each building ———. Dimensions of lots ———.
Owner ———. Address ———.
Architect ———. Address ———.
Plumber ———. Address ———.
How many buildings will the new ones replace? ———.
What kind of buildings were they? ———.
How many families did each of the old buildings accommodate? ———.
Were buildings on front or rear of lot? ———.

Pursuant to the requirements of law, the accompanying plan for the plumbing and drainage of each of the above-mentioned buildings, and the following description thereof, is hereby submitted for the approval of the superintendent of buildings, the undersigned hereby agreeing to cause the work to be done and the material to be furnished in accordance therewith, with such modifications as may be required by the superintendent of buildings. No modification of the plans or of the work described herein will be made, unless the same is previously allowed by the superintendent of buildings, on the written application of owner or architect; and all work pertaining to the proper plumbing and drainage of the buildings and premises which is not covered by the plans, but is found necessary during the progress of the work in order to carry into effect the true intent thereof, will be executed in accordance with the directions of the superintendent of buildings.

GENERAL DIRECTIONS.

It is expressly understood that these specifications and the drawings submitted herewith to the department of buildings for approval constitute together, as approved by said superintendent of buildings, the plans for the plumbing and drainage of the

buildings herein described; and in respect to all work not covered thereby the plumber is to be governed by the rules and regulations as to plumbing and drainage established by the superintendent of buildings.

The plumber will furnish all materials and perform all labor requisite and necessary for putting up and completing all the plumbing work in a good and thoroughly workmanlike manner, according to the plans therefor as approved by the superintendent of buildings.

All materials will be of good quality and free from defects.

The diameters of pipes herein specified are inside diameters.

The —— will properly close all openings in floors and ceilings about lines of drain and vent pipe, so as to prevent the passage of foul odors from one floor to another along said lines of pipe.

The plumber will send notice to the superintendent of buildings when the work will begin, and also at various times during the progress of said work before any part of it is permanently covered.

The plumber will properly protect all pipes and fixtures as soon as set, and close all pipe openings so as to prevent obstruction and damage.

The —— will do all the excavating and refilling required for the proper carrying out of these specifications, except as such work is herein otherwise specifically provided for.

The plumber will obtain and pay for all necessary permits, and comply with all corporation laws relating to the subject-matter of these specifications.

After the completion of the work under the plans and specifications, and before its final acceptance, the plumber must obtain the certificate of the superintendent of buildings that there is no violation of law on record against said work, and also a water permit from the department of public works. He will then turn on the water and leave everything in perfect working order.

I.—Materials, etc.

Earthenware pipe.

All earthenware pipe herein specified must be hard, smooth, salt glazed, and cylindrical, and not less than three-fourths of an inch in thickness. Each length will be perfectly straight and free from any fire cracks, flaws, blisters, or other defects.

All special fittings to be of the same quality as the pipe.

Cast-iron pipe.

All cast-iron pipe and fittings must be sound, cylindrical, and smooth, free from cracks, sand holes, and other defects, of a uniform thickness, and of the grade known in commerce as extra heavy. All iron pipe will be firmly secured in position by proper pipe supports placed not more than 5 feet apart. No tar-coated pipe will be used, but after the pipes have been tested and accepted by the inspector they will be coated with ——.

The following average weights per linear foot will be accepted:

	Pounds.
2 inches	5½
3 inches	9½
4 inches	13
5 inches	17
6 inches	20
7 inches	27
8 inches	33⅓
10 inches	45
12 inches	54

All joints in cast-iron pipe will be made with picked oakum and molten lead, and the plumber will make the joints impermeable to gases by bedding the lead with hammer and calking iron. For each joint in cast-iron pipe 12 ounces of lead must be used to each inch of diameter of the pipe in which the joint is made. No putty or cement joints will be permitted. The lead used for calking will be pure, soft pig lead; no old joints or other defective material will be used.

WROUGHT-IRON PIPE.

(If any wrought-iron pipe is to be used in the plumbing and drainage of the buildings it should be here specified.)

LEAD PIPE.

All branch lead soil, waste, and vent pipes, including bends, must be of the best quality and of not less than the following weights per linear foot:

Diameter.	Weight per foot.
	Lbs. Ozs.
1½ inches	3 8
2 inches	4
3 inches	6
4 inches	8

All connections of lead with iron pipes will be made by heavy brass ferrules of the same size as the lead pipe, set in the hub of the branch of the iron pipe and calked in with lead, the lead pipe to be attached to the ferrule by a proper solder-wiped joint when practicable. No putty or cement joints will be permitted.

All connections of branch lead soil, waste, and vent pipes will be made by wiped joints.

All lead pipes will be firmly secured in place with hard-metal tacks and screws, placed not more than 3 feet apart; and all horizontal lead pipes will be well supported for their whole length by shelves or carrying strips, to be provided and put up by ——.

II.—TESTS.

The plumber will test all of the soil, waste, drain, and vent pipes herein described, including branches, in the presence of an inspector of the department of buildings, and after due notice to the superintendent of buildings, by a pressure test; the pressure to be applied as directed by the inspector, and after all openings in the pipes have been securely closed by the master plumber or other person in charge of the work. None of said pipes shall be covered until after they have stood the test to the satisfaction of the inspector.

III.—CESSPOOLS AND SEWERS.

No cesspools will be allowed where there is a well on the same or adjacent premises, without a special permit from the superintendent of buildings.

The —— will construct in —— at —— feet from the building, a cesspool —— by —— and —— deep, with —— inch —— walls, and bottom made absolutely watertight by means of ——. The cesspool will be covered with —— and ventilated by ——.

As soon as it is possible to connect above-mentioned house with a public sewer, the owner will have the cesspool emptied, cleaned, disinfected, and filled with fresh earth, and have such connection made in the manner prescribed by the regulations of the superintendent of buildings.

PRIVATE SEWERS.

Where there is no public sewer in the street, and it is necessary to construct a private sewer to connect with a public sewer in an adjacent street or avenue, it must be laid outside the curb under the roadway of the street on which the houses front, and not through the yards or under the houses. Such sewer will be constructed in the following manner:

HOUSE SEWERS—EXCAVATION.

The —— will make the necessary excavation for the house sewer from the —— wall to the —— sewer in ——, making a smooth bottom for each pipe, free from all projections of rock, and with the soil well rammed to prevent settling of the pipe.

HOUSE SEWER—EARTHENWARE.

[NOTE.—The laying of earthenware drainpipe for house sewers, in made or filled-in ground, is prohibited by the rules established by the superintendent of buildings. But where the soil consists of a natural bed of loam, sand, or rock it is permitted to be laid from outside the cellar, vault, or area wall to the street sewer, if laid in strict compliance with the following directions:]

The —— will make a separate connection for each building with the —— sewer by an earthenware pipe —— inches in diameter, hard and salt glazed, and not less than three-fourths of an inch thick, run at a uniform grade of not less than one-fourth inch per foot, extending the same to a point not less than 2 feet outside of the outer face of the front cellar, vault, or area wall, as the case may be. Every section will be bedded in cement at the hub. The ends of the pipe will be wetted before applying the cement, and the space between each hub and the small end of the next section will be completely and uniformly filled with the best quality of hydraulic cement, care being taken to prevent any cement being forced into the drain to become an obstruction. No tempered-up cement will be used. A straight edge will be used, and the different pipe sections laid in perfect line on the bottom and sides.

HOUSE SEWER—OF IRON

Or the plumber will make a separate connection for each building with —— sewer in —— by —— inch extra heavy cast-iron pipe, run at a uniform grade of not less than one-fourth inch per foot, to a point just inside of the ——, cellar, or vault wall, as the case may be.

The house sewer in each case will be connected to the street sewer at a point directly in front of the house for which it is laid.

Old sewers or house drains can be used for new buildings only when found by an inspector of the department of buildings to conform in all respects to the regulations governing new sewers and drains. They will in each case be uncovered for examination by the ——.

Notice will be sent to the superintendent of buildings when any sewer or drain pipe herein specified is ready for inspection; and it can be covered only after it has been examined and pronounced satisfactory by an inspector of the department of buildings. In filling the trench no stones will be placed in contact with the pipe, and the earth will be thoroughly packed in without moving the pipe in the slightest degree or starting any of the joints.

IV.—HOUSE DRAIN.

The plumber will make a proper connection with the house sewer by extra heavy cast-iron pipe and set a —— inch extra heavy cast-iron running or half S-traps just inside of the front wall, with a hand-hole for cleaning, covered with a screw cap, properly fitted.

A fresh air inlet of extra heavy cast-iron pipe, not less than 4 inches in diameter, will be provided and properly connected with the house drain on the inlet side of the house trap, and extended up flush with the sidewalk near the street curb, and properly covered by a galvanized iron grating leaded into the flagstone; or extending to —— not less than 15 feet from any door or window, and opening at least 12 inches above finished grade, with cap, bend, or grating.

The —— will build a —— box or manhole with —— cover about the drain trap, so as to make it readily accessible.

The plumber will continue the house drain of extra heavy cast-iron pipe —— inches in diameter, along the cellar wall or ceiling from trap to the point shown on the plan, giving it a uniform grade to the trap of not less than one-fourth inch per foot. The house drain must not be laid beneath the cellar floor, unless the location of fixtures in the cellar or basement, or the drainage of yards, cellars, or areas requires it to be so laid. Make necessary changes in direction by curved pipes and all connections by Y-branch pipes and one-eighth or one-sixteenth bends. From the points shown on the plan, branch pipes of extra heavy cast-iron to be connected with the drain-pipe to receive the soil and waste pipes, the rain-water leader, and the connections from the area, cellar, and yard drains.

All of said branch pipes to be of the diameter hereinafter described and as shown on accompanying plan of cellar drainage.

Where hand-holes for cleaning are provided on the house drain or its branches or their traps, or on the house-drain trap, proper ferrules with screw covers will be used and made gas tight.

V.—Surface Drainage, etc.

All yards, cellars, areas, and light courts will be properly graded by the owner and drained as hereinafter specified. The traps for all such drains will be placed inside the cellar wall and made accessible.

Cellars will not be connected with the house drain unless absolutely necessary, dry cesspools being used where practicable. If connected to the house drain, running traps with cut-off valves and proper water supply will be provided for each connection, as follows:

The —— will build in each yard, cellar, area, and light court, where shown on plans, a brick cesspool or catch basin, —— by ——, made water tight if sewer connected, and the plumber will set over each a —— strainer and make connection therewith as specified.

Provide and set where shown on plans —— inch extra heavy cast-iron yard drain, connecting with house drain and trapped by —— inch running trap.

Provide and set where shown on plans —— inch area and light court drains, connecting with the house drain and trapped by —— inch running trap.

If found necessary to prevent dampness, the owner will make the cellar and foundation walls impervious thereto by means of asphaltum or coal-tar pitch and cement.

Subsoil drains will be provided where necessary. Their construction, trapping, and special provision for maintaining their trap seal will be as follows:

(Here should follow a detailed description of the construction, trapping, etc., of subsoil drains; also of any necessary stable drains.)

VI.—Upright Soil, Waste, Vent, and Drain Pipes.

SOIL PIPES.

For each water-closet or line of water-closets and adjacent fixtures, as shown on plans, provide and set —— inch extra heavy cast-iron soil pipe, connecting with the house drain by a Y-branch and one-eighth or one-sixteenth bend and extending in full caliber 2 feet or more above the highest part of the roof or coping. If near

a light shaft or other ventilating opening, extend the soil pipe —— feet above it. The soil pipe to have —— inch —— Y-branches for water-closets and —— Y-branches for other fixtures, where shown on plans.

Connect with above-described Y-branches —— inch iron pipe for iron water-closet traps, short lengths of 4-inch lead pipe for earthenware water-closet traps, and short lengths of —— inch lead pipe for other fixtures.

WASTE PIPES.

Provide and set, with proper connections for each basin, bath, sink, urinal, wash-tub, or tier of same, where shown on plans, —— inch extra heavy cast-iron waste pipe, connecting with the house drain and terminating above the roof in the same manner as soil pipe, said waste pipe to be not less than 4 inches in diameter from below the roof upward. The waste pipe to have —— inch —— Y-branches on each floor; and each of the set fixtures, where shown on plans, to be connected therewith by short lengths of —— inch lead pipe.

All branch soil and waste pipes must have fall of not less than one-fourth inch per foot to the pipes into which they discharge.

VENT PIPES FOR WATER-CLOSET TRAPS.

Set for all water-closets and —— as shown on plans, —— inch extra heavy cast-iron vent pipe, connecting, by short lengths of lead pipe not less than —— inches in diameter, with the crown of each water-closet trap, and —— inches in diameter for —— traps. Extend the main vent pipe above the roof in the same manner as the soil pipe and enlarge it to 4 inches in diameter from below the roof upward or connect with the soil pipe above the highest fixture, as shown on approved plans.

Said vent pipe to have —— inch —— T-branches on each floor.

VENT PIPES FOR OTHER TRAPS.

Set for traps of all other fixtures, as shown on plans, —— inch extra heavy cast-iron vent pipe, connected by short lengths of lead pipe —— inches in diameter, with the crown of each trap. Extend the main vent pipe above the roof separately, in the same manner as the soil pipes, and enlarged to 4 inches in diameter from below the roof upward, or connect with the waste pipe above the highest fixture, as shown on approved plans.

Said vent pipe to have —— inch —— T-branches on each floor.

There will be —— soil, —— waste, and —— vent pipes extended above the roof of each building.

The arrangement of all pipes throughout the building will be as direct as possible, and all unnecessary offsets must be avoided.

All vent pipes will be graded so as to discharge water collected by condensation, and connected at the bottom with the drain, soil, or waste pipe, as shown on plans, and in such a manner as to avoid obstructions from accumulated rust. The bowing of vent pipes must be avoided.

Whenever practicable, all pipes and traps will be left so that they may at all times be readily examined and repaired. Where they are necessarily placed in partitions or recesses in walls, they will be covered with face boards which will be fastened with screws, so as to be readily removed.

No caps, cowls, or bends will be affixed to the tops of pipes opening above the roof, but in tenement houses the opening of each will be protected by a strong wire basket securely fastened thereto.

All pipes above an extension roof will be extended above the roof of the main building when otherwise they would open within 30 feet of the windows of the main building or of an adjoining building.

The joints between all pipes and the roof will be made water tight by heavy sheet-lead flashings or ——.

ROOF DRAINAGE.

The —— will provide —— leader *outside* the house, of galvanized sheet-iron, —— inches in diameter; and the plumber will connect same with the house drain by a —— inch extra heavy cast-iron pipe, extending —— feet above —— level and a —— inch extra heavy cast-iron running trap so placed beneath the ground or inside the cellar wall as to prevent freezing.

The —— will provide —— leader *inside* the house, of extra heavy cast-iron, —— inches in diameter, to be trapped at the base, if it opens near a ventilating shaft or window, and the plumber will make the joint between said leader and the roof by means of a brass ferrule and lead or copper tube properly connected.

When there is no sewer connection the —— will connect the leader above specified by —— inch —— with the street gutter or ——.

SAFES AND SAFE WASTE PIPES.

Underline all —— with sheet-lead safes, of —— pounds per foot, with edges turned up at least —— inches, in a secure manner, to prevent overflow, each safe to be properly graded to the safe waste pipe. Connect all safes with a —— inch —— pipe, discharging either into an open sink or upon the cellar floor, as the architect may direct. The branch pipe from each safe to the main safe waste will be —— inch —— pipe.

Water-closets inclosed by woodwork will be provided with enameled iron drip trays.

REFRIGERATOR WASTE PIPES.

Line the spaces shown on plans and as prepared by carpenter with —— pound sheet lead and connect each by a —— inch —— branch pipe with a special line of refrigerator waste pipe. Said pipe to be —— inch —— pipe, so arranged as to discharge over a properly trapped and Croton supplied sink, in —— set not more than 3 feet above the floor, and so placed as to be convenient for ordinary use, and with the end of the pipe covered by ——. In tenement houses the refrigerator waste pipe will be extended 2 feet above the roof.

Provide over each outlet of the safe waste pipes and of each outlet from the refrigerator waste pipes a strong metallic strainer. In no case will a refrigerator or safe waste pipe be connected directly with the house drain or sewer, or with any pipe which connects with the house drain or sewer.

There will be —— line of refrigerator waste pipe and —— lines of safe waste pipes in each building.

VII.—Traps.

Trap every water-closet, urinal, sink, basin, bath, and every washtub or set of tubs, and all other sewer-connected fixtures effectively in the manner shown on the plans, the traps to be as near the fixtures as practicable. The traps will be so arranged that in no instance will the waste from a fixture pass through more than one trap before entering the house drain.

The inside diameters of traps will be as follows:

	Inches.
For water-closets	
For urinals	
For sinks	
For basins	
For baths	
For washtubs	

All traps will be of the same weight and thickness as their corresponding branches. They will be well supported and set true with respect to their water levels.

Special precaution must be taken to secure perfect joints between water-closet traps placed above the floor and the branch soil and vent pipes for same. Cast-iron traps must have lead-calked joints.

Proper floor plates must be used with earthenware water-closet traps and the joints made permanently secure and gastight by means of bolts and red lead or ——.

The vent-pipe connections for earthenware traps will be made permanently gastight by ——.

VIII.—Water-closet Cisterns.

The —— will put up, over each water-closet a —— cistern —— by —— by ——; and the plumber will connect the same with the supply pipes by —— inch —— lead pipe and with closet bowl by —— inch —— lead pipe, arranged for the proper flushing of the closet, and leave the whole in complete working order with the necessary chain and pull or ——.

In no case will a water-closet within the building be flushed directly from the Croton supply pipes; and the water from cisterns which supply water-closets directly will be used for no other purpose. Where water does not rise to water-closet cisterns they will be supplied from a house tank, or pumps will be provided to properly supply the same; said pumps to be so placed, arranged, and connected as to enable tenants using the water-closets to conveniently secure at all times a proper flush for each of said water-closets.

Discharge the overflow pipe from each water-closet cistern into the bowl of the water-closet. In no case will it discharge into the soil or waste pipe or into the drain or sewer.

IX.—House-supply Tank.

Provide and set on —— a tank for drinking water, to hold —— gallons, lined with —— and constructed of ——.

Make all necessary connections with supply and house pipes as specified under water supply.

Provide a —— inch overflow pipe and a —— inch emptying pipe, each to be discharged as follows:

(Here should follow the necessary specifications.)

Provide a —— telltale pipe and ——.

The discharge or emptying and overflow pipes will not be connected in any way with any soil, waste, vent, or drain pipe.

PUMPS.

If the pressure of the Croton be found to be insufficient to supply any fixture or any water-closet tank, provide and set up a —— pump to supply house tank or —— pumps for each ——, and make all necessary connections as specified in detail under water supply.

X.—Number, Location, and Description of Fixtures.

Supply and set up in complete working order the following fixtures of the pattern and kind hereinafter described; the exit pipes to wash basins, bath tubs, washtubs, and sinks to be provided with strong metallic strainers:

	Yard.	Cellar.	Basement.	1st floor.	2d floor.	3d floor.	4th floor.	5th floor.	6th floor.
Water-closets									
Urinals									
Wash basins									
Bath tubs									
Washtubs									
Sinks									
Pumps									
Refrigerators									

(Here should follow a description of the pattern and kind of water-closets, urinals, wash basins, bath tubs, washtubs, sinks, refrigerators, etc., to be provided.)

XI.—Water-supply Pipes.

The plumber will grade each line of supply pipe so that it can be completely emptied at its lowest point.

Water pipes in exposed places will be packed by the —— with mineral wool, or other substance equally good, to prevent freezing, and will be properly boxed and cased to the satisfaction of the superintendent of buildings.

The —— will excavate for and the —— will insert —— inch tap in street main, if necessary.

The plumber will connect tap and house supply at point indicated on the plans by —— inch —— lead pipe, to weigh —— per foot, to be laid —— feet below curb level.

Also place a stopcock at —— to shut off the water when necessary.

(A description of the quality, diameter, and weight of supply pipes to fixtures should here follow.)

XII.—Gas Fitting.

(Here should follow a detailed description of the gas fittings to be used in the buildings.)

To the preceding specifications for plumbing and drainage must be attached the signature of the owner or architect.

The superintendent of buildings acts upon the report and observations of the inspector, and where favorable furnishes the necessary certificate. Terra cotta pipes are not permitted. Whenever iron pipes are used galvanized ones are preferred. Tests are made by air and water pressure over every inch of surface.

Plans for light and ventilation also require exceedingly detailed specifications. They appear in the form of application for approval of plans following:

APPLICATION TO THE SUPERINTENDENT OF BUILDINGS TO APPROVE PLANS FOR LIGHT AND VENTILATION OF PROPOSED TENEMENT HOUSE.

Application is hereby made to the superintendent of buildings of the city of New York to approve the plans herewith submitted for light and ventilation of the tenement houses described in the following specifications, which are hereby made a part of said plans. The plans and specifications are to be construed together; but in case of any difference between them, these specifications, subject to such conditions as may be imposed by the superintendent of buildings, are to govern:

Location ———. Number of buildings ———.
Owner ———. Address ———.
Architect ———. Address ———.
Size of lot ———. Size of building ———. Number of floors above cellar ———.
Size of extension ———. Number of floors above cellar ———.
Basement—how to be occupied ———.
Basement ceiling—height above sidewalk ———.
Cellar—how to be occupied ———.
Cellar floor—depth below sidewalk ———.

	Floors.								
	Cellar.	Basement.	First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Seventh.
Number of families to be on each floor									
Height of ceilings									
Inside rooms -number on each floor									

Inside rooms—how lighted ———.
Inside rooms—how ventilated ———.
Halls—how lighted and ventilated ———.
Will each living room communicate directly with the external air? ———.
Will each bedroom have a window opening directly to the external air? ———.
Size of windows opening on light and air shafts ———.
Area of openings at top of each light and air shaft ———.
Height of louvre sides above roof ———.
Size of fanlights over all doors ———.
Skylights, number of ——. Size ———. Where located ———.
Cellar—how lighted and ventilated ———. Will cellar ceiling be plastered? ———.
Cellar—will it be made water tight? ———. By what means? ———.
What additional structure, if any, will be on the lot? ———.
Distance from extreme rear of house to rear line of lot ———.
Distance from extreme rear of extension to rear line of lot ———.
Number and location of water-closets ———.
Dimensions of shaft for water-closets ———.
How arranged at top to secure ventilation ———.
Size of windows opening on water-closet shaft ———.

	Size.	Area.	Remarks.
		Square feet.	
1st vent shaft			
2d vent shaft			
3d vent shaft			
4th vent shaft			
Main yard			
Rear yard			
Alley			
Front house			
Rear house			
Lot			

Percentage of lot covered ——.
Dated ——— ——, 189—.

(Signatures of owner and applicant.) ——— ———.
——— ———.

NOTICE.—Architects, builders, and plumbers are hereby notified that strict adherence to the plans and specifications on which this permit is granted will be required by the superintendent of buildings, unless permission in writing has been previously given by him allowing their modification.

———— ————,
Superintendent of Buildings.

PERMIT.

Upon the statements contained in the foregoing application and specification, the plan for light and ventilation submitted therewith was approved by the superintend-

ent of buildings of the city of New York, on the —— day of ———, 189—, subject to the following conditions and regulations:

SPECIAL CONDITIONS.

[NOTE.—These special conditions take precedence of all regulations.]

(The special conditions should be here detailed.)

REGULATIONS.

[NOTE.—These regulations govern in respect to particulars not covered by the plan and specifications or special conditions.]

VENTILATION OF ROOMS.

Every habitable room must have at least one window opening directly upon the street or yard, or upon a court or light shaft.

LIGHT AND AIR SHAFTS.

Except as hereinafter otherwise prescribed, every light and air shaft for habitable rooms must be at least 12 square feet in area for a three-story house, 16 square feet in area for a four-story house, and 20 square feet in area for a five-story house; and in every case not less than 2 feet wide in the clear. Shafts or courts between two houses and common to both, must be of double this area, and not less than 4 feet wide. But in houses where there are five interior rooms in a line on a floor, the area of shafts must be 50 per cent greater than above prescribed; and where there are six interior rooms in a line on a floor, the area of each shaft must be at least 100 per cent greater than the minimum above prescribed.

And in every tenement house with apartments on five or more floors, and having more than twelve rooms on a floor, to be erected on an ordinary city lot, except a corner lot, the courts to light and ventilate interior rooms must have an area of at least 265 square feet; and where there are twelve rooms on a floor, the area of such courts must be not less than 215 square feet.

WINDOWS.

The windows of habitable rooms which open on shafts or courts must be hung with weights so as to slide vertically, each window to be not less than 12 square feet in area.

VENTILATION OF WATER-CLOSET COMPARTMENTS.

Water-closets shall not be ventilated by a shaft which ventilates habitable rooms; and where they do not open otherwise to the external air, they must be ventilated by means of a separate shaft, not less than 3 square feet in area, to extend above the roof, and arranged for the admission of light and air at the top in like manner as the shafts for rooms.

WATER-CLOSETS, ETC.

No privy vault or cesspool shall be allowed, if water-closets can be connected with the street sewer. At least one water-closet shall be provided for each two families. The general privy accommodation shall not be placed in the cellar.

YARDS, AREAS, ETC.

Yards, areas, cellars, and light courts shall be properly graded and drained and flagged or concreted.

ALTERATIONS AND ADDITIONS.

No alteration in the light and ventilation of the premises for which this permit is granted shall be made, except upon the express written approval of the superintendent of buildings; nor shall any additional structure be erected upon the lot except upon such approval and a special permit.

———— ————,

Superintendent of Buildings.

TENEMENT HOUSES.

In the construction of tenement houses 78 per cent of the ground may be covered. The great majority of lots are built upon to this limit. The estimate of an inspector places at 20 per cent the number of buildings which cover from 55 to 78 per cent of the space. The regulations provide for a ventilating skylight over the staircases in tenement houses. In such buildings there must be also closet accommodation in the ratio of one for every two families. The first story of tenement houses is required to be fireproof and to have an iron stairway.

A series of prize plans for tenement and apartment houses is on file at the office of the superintendent of buildings. These are of various types, and have been made with reference to economy, and yet to afford a maximum of convenience and sanitary advantages. The buildings are meant to pay a fair return to the owners, and are not designed as model tenements for purely philanthropic enterprises. It is very difficult to construct good tenement houses on lots having 25 feet frontage and 100 feet depth. In many cases it is considered advantageous to buy several lots and divide them. The wonderful progress which has been made in tenement house construction can not be more graphically presented than in the accompanying sketches (plans Nos. 5 to 8).

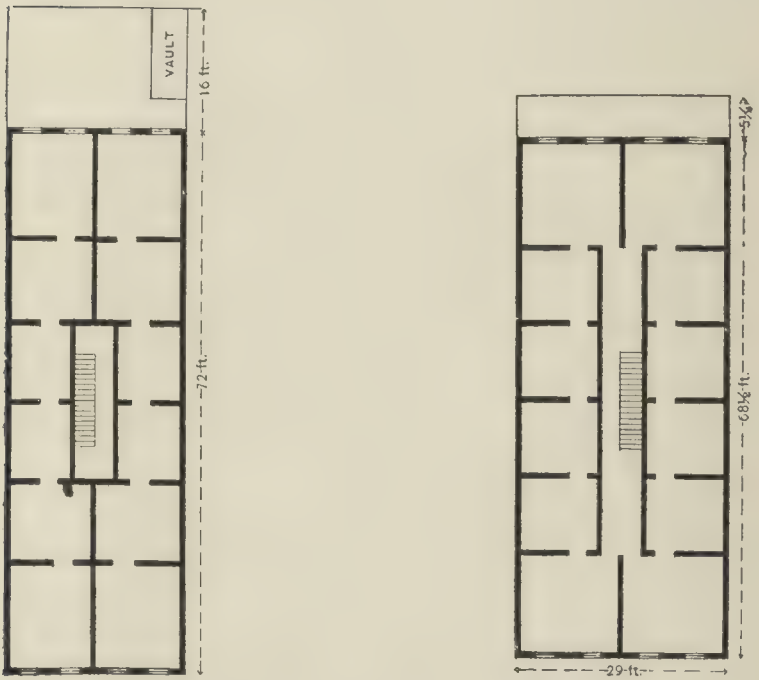
The first (plan No. 5) is a plan of tenements as they existed in 1863, accommodating twelve families on each floor. The second (plan No. 6) is an outline of a typical tenement house prior to 1879. The third (plan No. 7) represents a group of the earliest plans approved by the board of health under the building law of 1879. Prior to this date, it should be remembered, there was practically no state or municipal control over the erection of buidings in New York city. The next (plan No. 8) is a first-prize plan in the tenement house design competition of 1879. Then follow four of the prize plans now on file in the department of buildings, representing the models upon which a large proportion of buildings are now erected. All of these plans have been followed out time and again in existing constructions; they are not purely idealistic.

The first of these buildings (plan No. 9) has a frontage of 25 feet and a depth of 89 feet 6 inches, and is placed upon a lot 25 feet by 100 feet. All the tenements are lighted and ventilated by windows opening to the street, yard, or large courts. There are platform stairways, which, with the halls, are lighted by windows opening to the courts. Additional light and ventilation for rooms and halls are secured by transoms over all the doors. Sinks and washtubs are placed in each suite of rooms, and one water-closet is provided for every two families. Water-closet apartments are ventilated by means of a special shaft, and are lighted by stationary windows abutting on large courts. Front and rear apartments are separated by sash doors open-



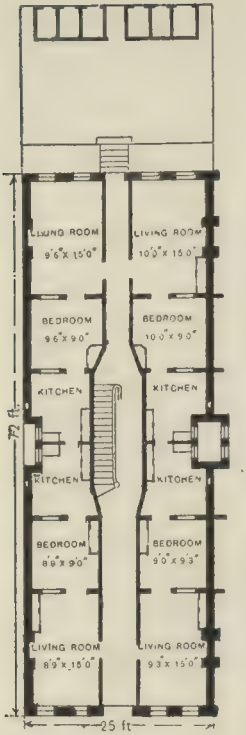
TENEMENT HOUSE OF 1863, FOR TWELVE FAMILIES ON EACH FLOOR, NEW YORK CITY.

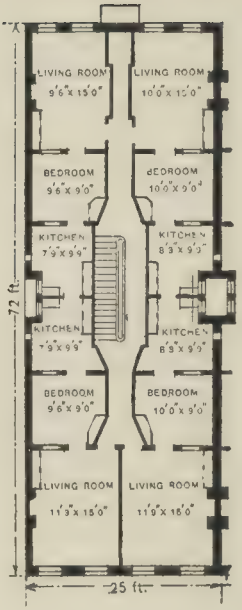
PLAN NO. 5.

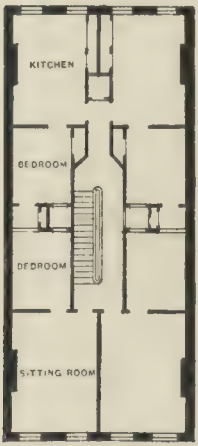


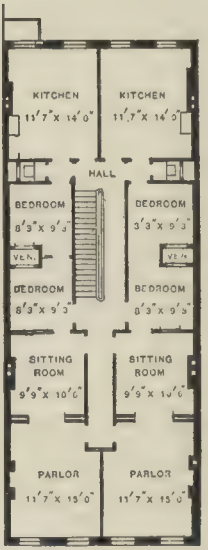
TENEMENT HOUSE PRIOR TO 1879, NEW YORK CITY.

PLAN NO. 6.



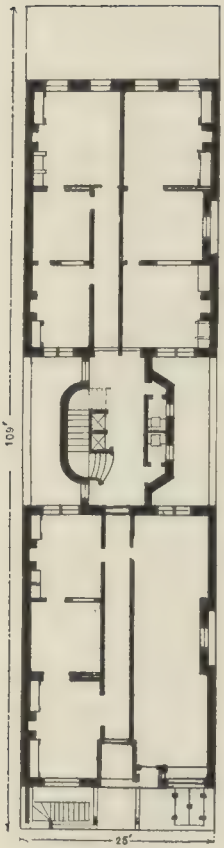




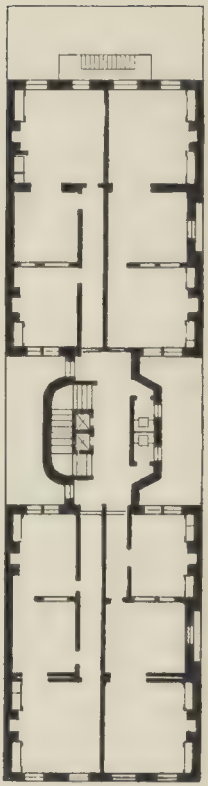


GROUP OF THE EARLIEST TENEMENT HOUSE PLANS APPROVED BY THE BOARD OF HEALTH UNDER THE LAW OF 1879, NEW YORK CITY.

PLAN NO. 7.



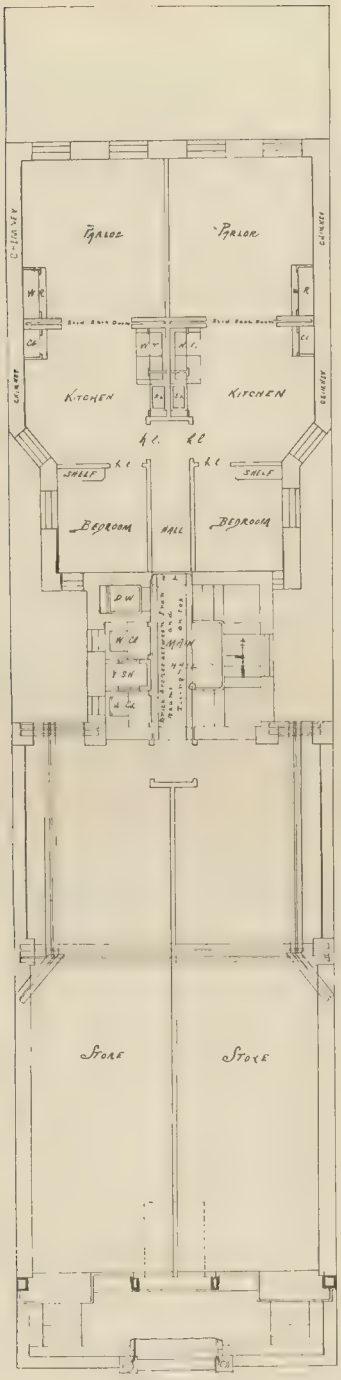
First floor.



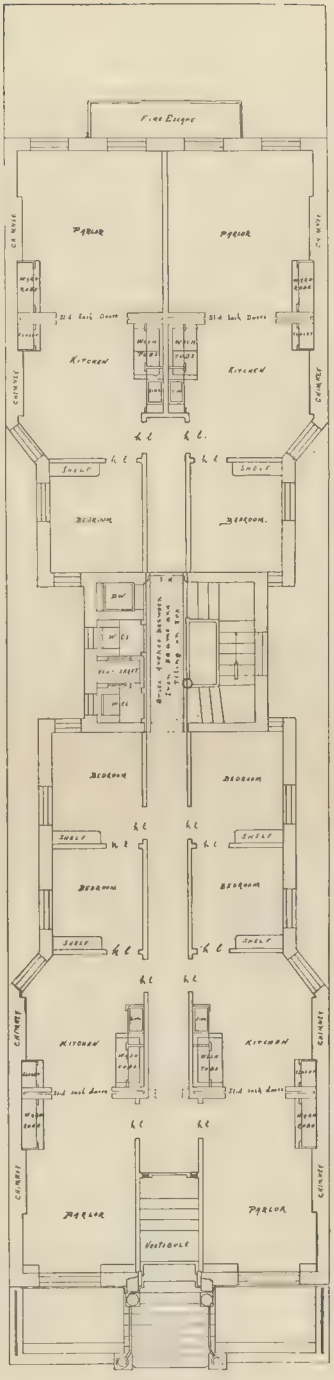
Upper floor.

FIRST PRIZE PLAN OF THE TENEMENT HOUSE DESIGN COMPETITION OF 1879, NEW YORK CITY.

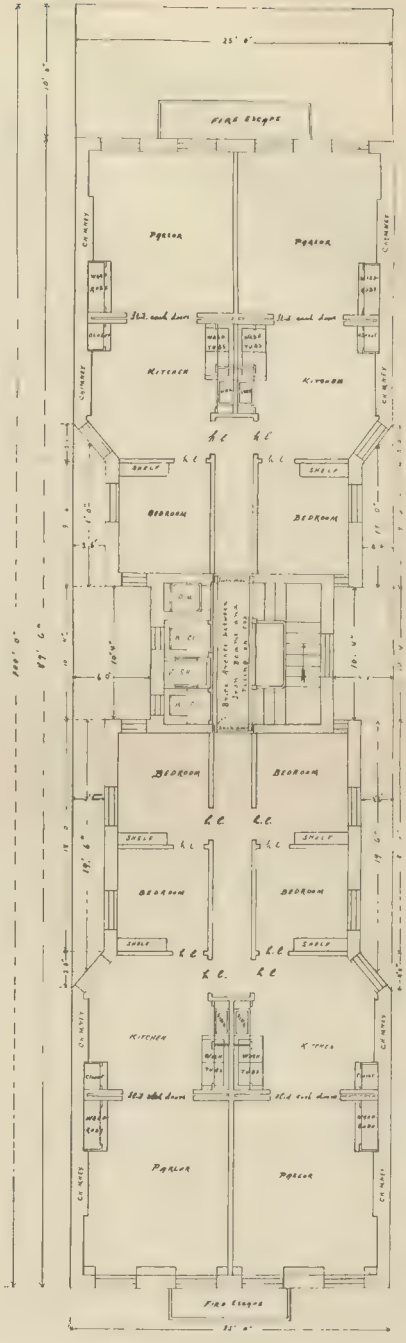
PLAN NO. 8.



Basement.



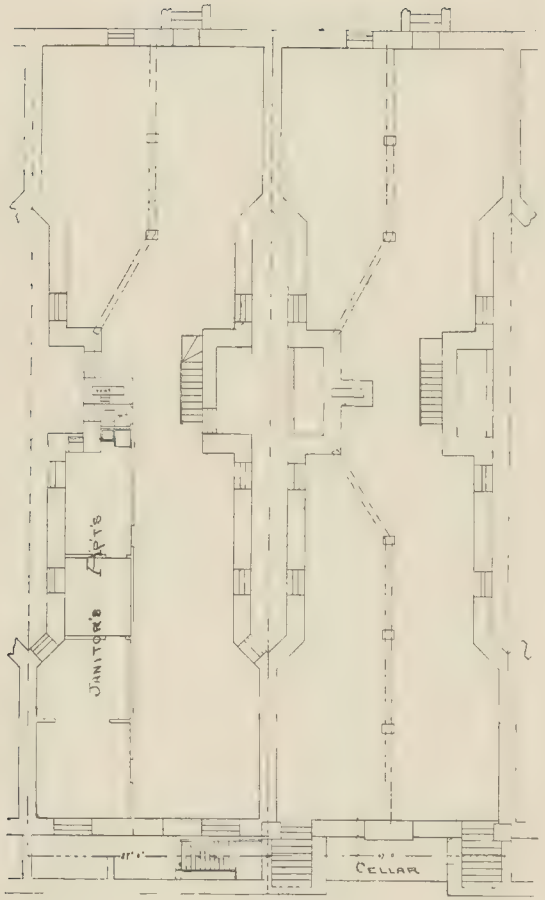
First floor.



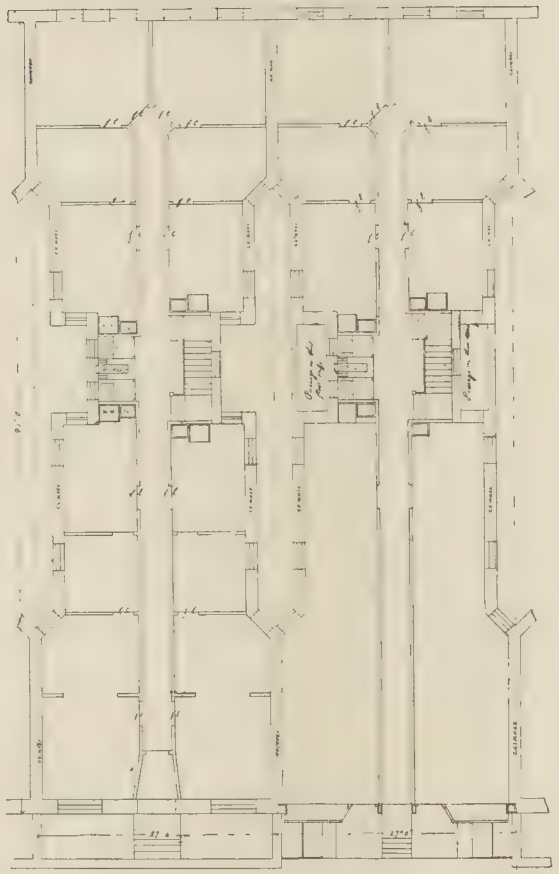
Upper floors

PRIZE PLAN OF THE TENEMENT HOUSE DESIGN COMPETITION OF 1879, NEW YORK CITY.

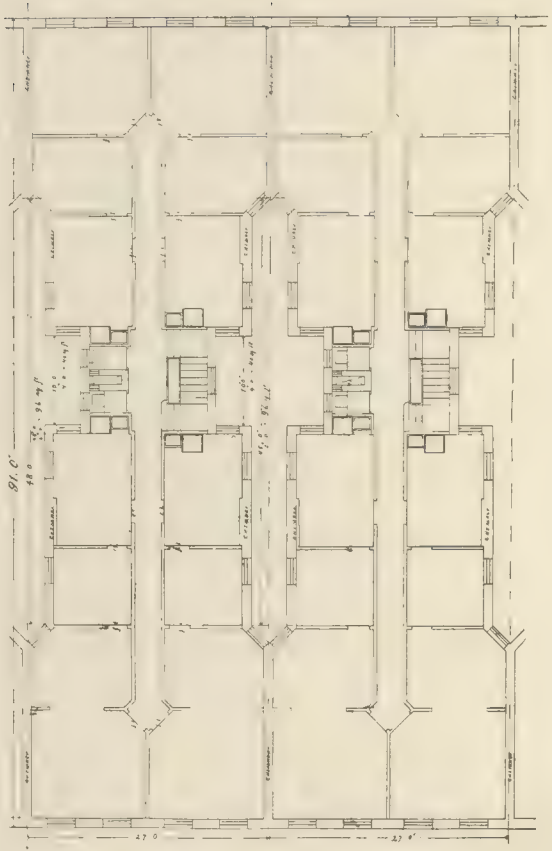
PLAN NO. 9.



Basement.



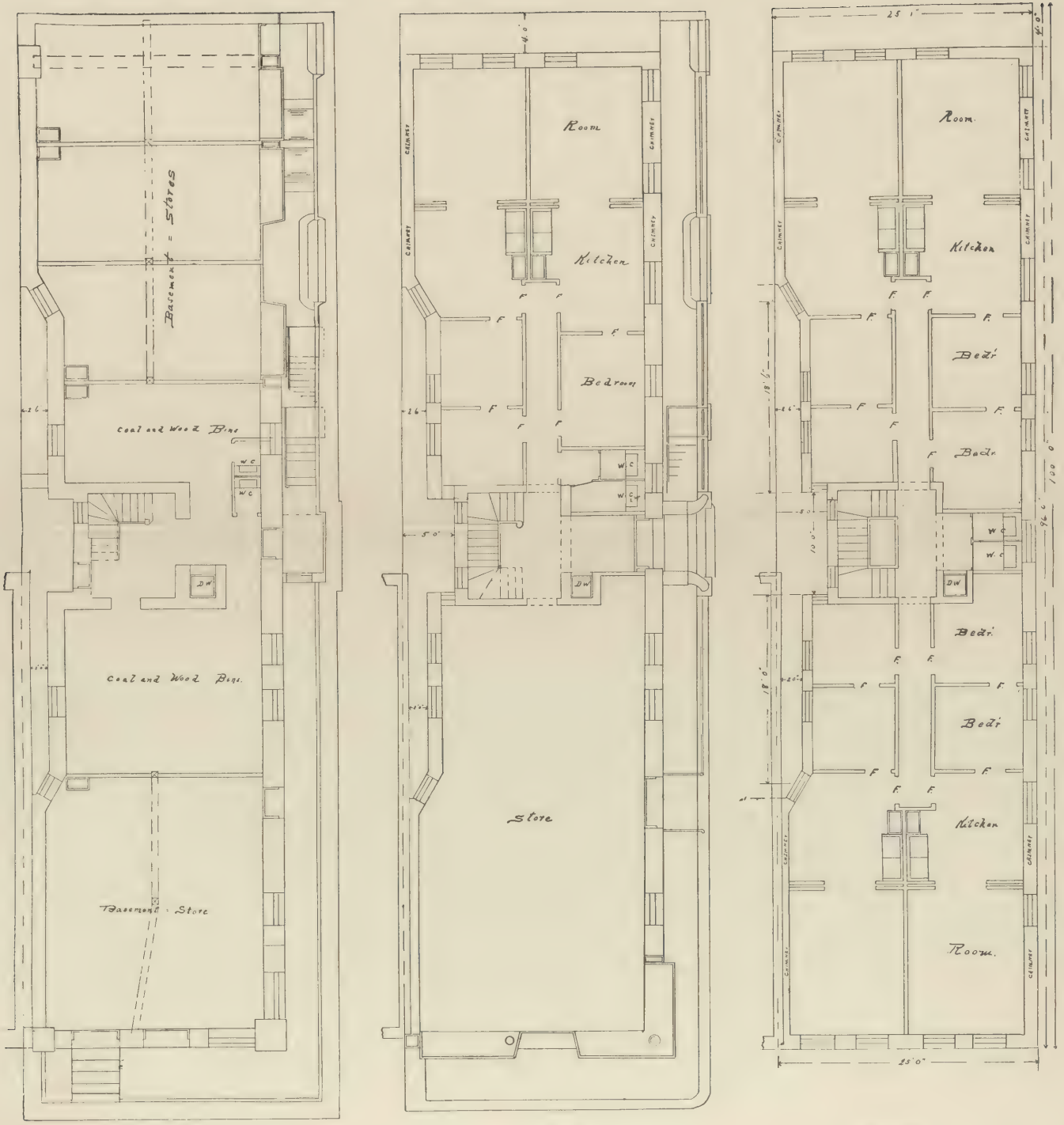
First floor.



Upper floors.

PRIZE PLAN OF THE TENEMENT HOUSE DESIGN COMPETITION OF 1879, NEW YORK CITY.

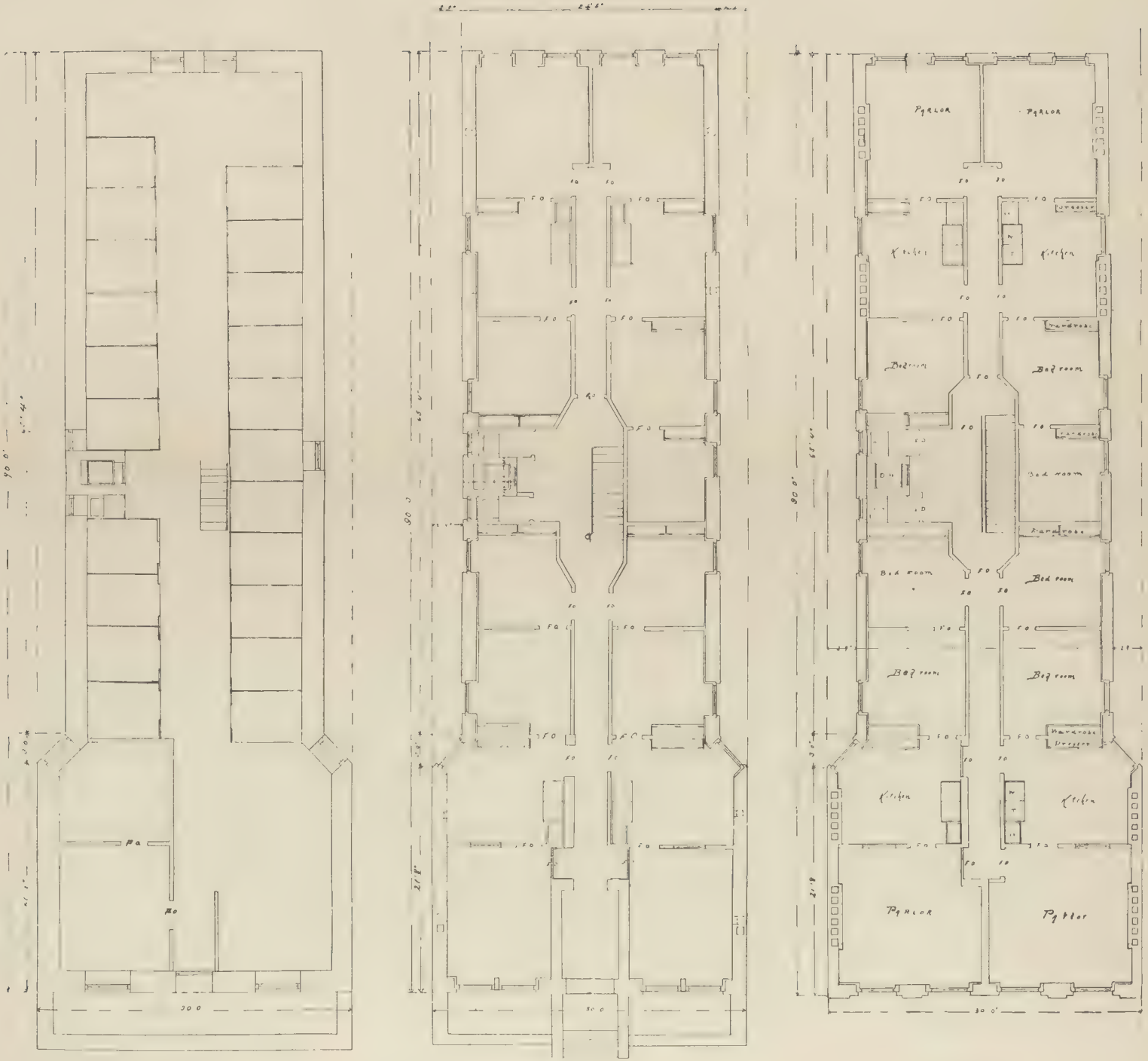
PLAN NO. 10.



Basement. First floor. Upper floors.

PRIZE PLAN OF THE TENEMENT HOUSE DESIGN COMPETITION OF 1879, NEW YORK CITY.

PLAN NO. 11.



PRIZE PLAN OF THE TENEMENT HOUSE DESIGN COMPETITION OF 1879. NEW YORK CITY.

PLAN NO. 12.

ing to the public halls. A dumb-waiter exists for the use of tenants. In the basement ceilings are 9 feet 4 inches high; on the first floor they are 10 feet high; on the succeeding four floors they are 9 feet 8 inches high.

The second plan (plan No. 10) represents two of a row of buildings each 27 feet by 91 feet, upon lots 27 feet by 103 feet 3 inches. The arrangements in general are the same as in the preceding plan, but in addition the halls extend to front rooms. The kitchens are at the end of each suite of rooms, and the rooms are larger. Superior light and ventilation have also been obtained, which is due to a row having been constructed together instead of an individual building. The ceilings are of the same height as in the previous instance.

The third plan (plan No. 11) shows a house 25 feet 1 inch by 96 feet, upon a lot 25 feet 1 inch by 100 feet. The general disposition of the rooms is pretty much the same as in the two preceding instances, but they have superior light and ventilation on one side, for the reason that all rooms there have windows opening directly to the streets. Water-closet apartment ventilation is also better, for the same reason.

The fourth plan (plan No. 12) shows a house 30 feet by 90 feet, upon a lot 30 feet by 100 feet. All of the rooms and water-closet apartments open directly to the external air, the courts running continuously to the rear line. There is a dumb-waiter, and the rooms have the advantage of superior size, the lot being 30 feet wide.

These plans represent tenement houses built for workingmen. They are arranged for four families on each floor, and the rents vary from $10 to $20 per suite per month. Five stories are devoted to living apartments in tenement houses for this class of people.

Tenements renting for $10 to $15 per month usually have three rooms to the suite, with four families on a floor. They have a frontage of 25 feet and a closed court on each side of the stairway midway between the front and rear; two tenements are in front and two back of the stairway. A space, usually 10 feet by 25 feet, is left vacant in the rear of the structure, and the interior court may not be less than 2 feet wide for each house. A common hallway on each floor usually serves for two families. Whenever extra space is available by reason of greater frontage the interior court is extended to the rear end of the building. This arrangement is preferable because it affords better ventilation. An ordinary light well may become a great nuisance, at best it furnishes imperfect light and ventilation, and as buildings grow older refuse matter or filth of one kind or another is very apt to accumulate at the bottom, giving rise to noxious odors.

A distinguishing feature of some of the tenement houses is that the kitchen is in the middle of the apartment, separating one bedroom from the other. This prevents unnecessary passing from one bedroom to the other, and the kitchen furnishes heat for both. The complete separa-

tion of sexes, or, where lodgers are taken, isolation of members foreign to the family, can be had in this disposition. In all tenement houses, whether for the poorer or better classes, there is an increasing demand for modern improvements, and applicants for accommodation are beginning to consider the relative merits of light, ventilation, and other accommodations before renting. A wholesome interest in the sanitary conditions of a proposed habitation is increasingly evident.

CHAPTER VII.

INTERVENTION OF PUBLIC BODIES.

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INTERVENTION OF PUBLIC BODIES.

BELGIUM.

One of the most important, well-conceived, and widely influential measures which has yet been incorporated into the statutes of any enlightened nation is the Belgian law on laborers' dwellings, which was promulgated August 9, 1889. The royal commission on labor of 1886 had disclosed in their investigations and report certain facts for which remedial effort seemed necessary. Probably the most practical outcome of their labors has been the attention which has since been directed to the question of the housing of the people, and which culminated in the passage of the enactment above referred to. The measure received the cordial sanction of Prime Minister Beernaert. There are three distinct parts to the law: (1) Creation of committees of patronage; (2) loaning of money by the General Savings Bank (*la Caisse Générale d' Épargne et de Retraite*); (3) institution of life insurance in connection with the repayment of loans. The first part of the law established in each local administrative district (*arrondissement*) a body which may perhaps be called a semiofficial committee on good works. It is composed of not less than five and not more than eighteen members, appointed for a term of three years. From three to ten are named by the permanent delegation (local representatives) in the provincial council and from two to eight by royal decree. The duties of this body, as defined by administrative act July 7, 1891, are as follows:

ARTICLE 15.—A. To encourage the construction and letting of salubrious dwellings for working people, and their sale, either for cash or for annual payments. With this end in view they shall study and make an effort to bring about appropriate combinations for this purpose. They shall aid in the formation of joint stock and cooperative companies for the construction of workingmen's dwellings. They shall facilitate the work of any public administration, of companies, and of individuals by the examination of proposed plans, and by offering for examination typical plans of houses prepared in conformity with the programme of the superior council of hygiene.

B. To study all that concerns the salubrity of houses inhabited by workingmen and the hygiene of the locality where they are established in large numbers. For this purpose they shall exercise a permanent and general supervision over workingmen's dwellings and populous quarters and occupy themselves with gleaning statistical information upon the condition of workingmen's homes. They shall devise proper means to facilitate the sanitation of these quarters; they shall inspect

dwellings, with the consent of their occupants, and make a note of the prevailing conditions; they shall in particular notice if they are sufficiently large and properly ventilated, and if they are provided with the necessary supply of water; they shall also assure themselves of the proper condition of the sewers and the regular removal of refuse. After investigating the causes of insalubrity they shall indicate the proper ameliorations to the occupant, to the principal lessee, and to the proprietor, and whenever it is a question of lodgings which are not susceptible of being thus ameliorated, they shall call the attention of the local authority, or in case of need the attention of the provincial medical commission to the facts.

C. To encourage the development of thrift and of life insurance, as well as loan companies and mutual relief and pension funds. For this purpose the committees may put themselves in relation with heads of industries and with workingmen. They shall give their advice, whenever necessary, to the governing commission of societies of mutual relief relative to requests for legal recognition presented by newly organized local agencies.

ART. 16. The committees shall correspond directly with the government, with the provincial authority, with the communal administrations of their jurisdiction, as well as with the General Savings Bank (*la Caisse Générale d'Épargne et de Retraite*), with the governing commission of societies of mutual relief, and with the provincial medical commission.

* * * * * * *

They shall give their advice upon all questions which are submitted to them by the government, by the provincial authority, by the governing commission of societies of mutual relief, and by the provincial medical commission.

* * * * * * *

ART. 17. The committees of patronage may establish and distribute prizes for order and neatness in the care of dwellings and for thrift.

In order to carry out this purpose they may receive personal gifts and legacies and subsidies from public bodies.

ART. 18. In cases of expropriation of areas in quarters specially inhabited by the working classes the governor shall communicate the project to the committee of patronage interested.

The committee shall give its advice concerning the conditions which it thinks should be imposed in regard to the resale of the ground included in the expropriation.

The papers in the case shall then be submitted to the permanent delegation and transmitted to the government.

The committees are also required to make an annual report of their operations to the minister of agriculture, industry, and public works. A copy is communicated to the superior council of hygiene, and each commune is entitled to receive official communication of the particular part of the report which concerns it.

The establishment of local committees of patronage of this sort has been a happy innovation. Much profit has resulted to the working people and to the community as a whole by the close inspection and careful study of hygiene which they have given. The reports of the Brussels committee, made by Messrs. Charles Lagasse and Charles de Quéker, and of Colonel van den Bogaert, of the Antwerp committee, show with what care, precision, and scientific exactitude the work has

been done. Ex-Premier Beernaert offers his official testimony to the successful working of this scheme. He publicly asserted that committees had been established throughout the whole kingdom, and that devoted men had been found to give their attention to the duties involved. Almost everywhere they have made thorough house-to-house investigations of the habitations of the poor. They have also prepared and distributed in great numbers plans and estimates for houses, and have been useful in establishing companies for the construction and sale of workingmen's dwellings.

The second distinct feature of the Belgian law is the authorization to the General Savings Bank (*la Caisse Générale d'Épargne et de Retraite*), a semiofficial institution, whose deposits the government guarantees, to loan a part of its reserve at reduced rates, in order to encourage proprietorship of homes among working people. The general principle is laid down of lending only through an intermediary; consequently four different kinds of associations are contemplated by the law, namely, joint stock and cooperative loan companies and joint stock and cooperative building companies. To the loan companies the rate of interest on advances made by the General Savings Bank, in pursuance of their object, is fixed at 2½ per cent, and to the building companies at 3 per cent per annum. Not only is there a discrimination as to the rate of interest charged for these advances, but the amounts of the advances made to loan companies and to building companies vary. To the former, if a joint stock company, an advance may be made, in the first instance, equal to one-half of the capital stock subscribed and not paid in, and, again, equal to three-fifths of the value of the real estate security furnished. Advances to building companies can only be made of an amount equal to one-half of the value of the real estate belonging to the company in each instance.

The loan company is formed exclusively for the purpose of making loans to working people for the construction or purchase of houses for their own habitation. Future inhabitants may, subject to approval, choose their own ground, and borrow money from the company to construct houses according to their tastes, the company acting as guide and adviser. Building companies construct, purchase, sell, or rent, but ownership is vested in the society. There is less security to the loaner, and smaller latitude, as a general thing, for exercise of the laborer's choice.

The loan companies, in order to receive advances, must give bonds, so to speak, of their philanthropic intentions by limiting their dividends to 3 per cent per annum. The object of this prescription is to prevent borrowing for speculation. The reduced rate of interest to the loan companies is created in view of the greater security furnished. The advice of the local committee of patronage is always sought in reference to the character of these companies. Knowledge of their intentions and of their financial standing and ultimate aims comes to the governing powers of the bank in this way.

The committees of patronage are exceedingly useful in assisting the General Savings Bank in its loaning operations. After a company is formed, and before any money whatever is advanced to it, the local committee of patronage is called upon to give information to the board of directors of the General Savings Bank concerning the status of the company, what it is doing, and what service it is likely to render. Being a local organization, the committee of patronage is cognizant of the facts, and its report guarantees financial stability and forestalls speculative possibilities. The first step which a workingman takes when he starts to acquire a house is to address himself to the local committee of patronage. He secures from it a certificate establishing the fact that he is a bona fide workingman. This certificate is attached to the act of sale or to the mortgage passed between himself and the company. It is this certificate which gives him the benefit of a reduction of charges for registration fees, etc., which are mentioned in the text of the law.

The by-laws of joint stock companies, either loan or building, for favoring the construction of workingmen's dwellings, in order that the companies may obtain advances from the General Savings Bank, must contain the following clauses: (1) An agreement to accept the surveillance of the General Savings Bank. (2) An agreement to submit to the ratification of the General Savings Bank's board of directors all transfers of shares not fully paid up. The reason for this prescription is apparent when it is considered that the General Savings Bank, in making an advance equal to one-half of the capital stock subscribed and not paid in, relies to a certain extent for its security upon the solvency of the individual owners of shares. (3) To give to the board of management of the savings bank immediate notice of every sum called in, either in partial or entire payment of shares. (4) To transmit to the said board every year a certified statement of its affairs.

As regards the surveillance, the only stipulation of any importance is that no engagement may be entered into by the company with a third party which is not sanctioned by its board of directors or by a general meeting and duly spread upon the minutes. Companies must also engage to pay in upon account with the General Savings Bank all moneys beyond a small sum; and, furthermore, their employees who handle money must be bonded.

The reason for the requirement to pay over everything except a small sum, usually not more than 1,000 francs ($193), into an open account with the bank is that all breaches of trust or misuse of funds may be avoided. The same motive lies at the foundation of the requirement that employees handling money shall be bonded.

The General Savings Bank allows interest on deposits equal to what it charges upon advances, that is, 2½ and 3 per cent, as the case may be.

The form of by-laws required by law of a joint stock loan company is as follows:

BY-LAWS OF A JOINT STOCK LOAN COMPANY FORMED UNDER THE BELGIAN LAW OF 1889.

Chapter I.

Article 1. There is hereby formed between the undersigned and all those who shall become shareholders a joint stock company under the name and title of ——.

Art. 2. The company has its chief office at ——.

Art. 3. The duration of its existence is fixed at —— years, dating from this day.

The first fiscal year shall end with December 31, 189–.

Art. 4. The company has for its exclusive object the making of loans with the view of constructing, or the purchasing of real estate destined for, workingmen's dwellings. Consequently it is empowered to do all acts and transact, generally, whatever shall be necessary for these operations, and especially:

To grant loans secured by mortgage and repayable in fixed installments, for the purpose of enabling workingmen to purchase real estate from third parties;

To borrow, with or without security;

To receive savings or other deposits to an amount which shall keep the liabilities of the company to its creditors below one and one-half times the liabilities of the company to itself (capital subscribed and reserves);

To guarantee the obligations of third parties; to pay in their place and stead with subrogation upon mortgage;

To conclude with the General Savings Bank (*la Caisse Générale d'Épargne et de Retraite*) under the guarantee of the state mixed insurance upon the lives of their borrowers by paying for them the necessary premiums for the purpose of insuring the reimbursement of loans made for the construction or purchase of dwellings.

The company is prohibited from acquiring real estate other than that which may be offered for sale in consequence of a writ of execution issued against one of its debtors, or in consequence of overbidding in cases of voluntary alienation, or when offered for sale at auction. In none of these cases shall the purchase price exceed the balance due from the debtor-proprietor.

Chapter II.

Art. 5. The capital of the company is fixed at —— francs and divided into —— shares, each of the value of —— francs.

Art. 6. These —— shares are subscribed for as follows:

	Shares.
1. By Mr. X	
2. By Mr. Y	
3. By Mr. Z, etc	
Total, equal to the shares issued	

Art. 7. On the total of the shares subscribed by each shareholder an immediate payment must be made in gold or silver coin of legal value, in the presence of the undersigned notary and witnesses, into the hands of the hereinafter named directors, amounting to —— per cent of the value of each share, that is, a total sum of —— francs. The balance shall be paid into the hands of the directors upon the decision of the

board of directors upon one month's notice, to be given by simple letter. No call for funds shall exceed —— per cent (*a*).

ART. 8. Shares are transferable. They are numbered in regular order and a register of them is kept at the chief office.

Shares fully paid up may be converted into shares payable to bearer; the shares payable to bearer are signed by two directors.

The possession of a share carries with it the legal obligation to submit to the by-laws of the company and to the decisions of the general meeting.

ART. 9. Shares are indivisible. If there are several owners for the same share, the company has the right to suspend the exercise of rights belonging thereto until one person only shall be designated as being owner of the share.

ART. 10. Neither the death nor the interdiction, nor the bankruptcy, nor the insolvency of one or more shareholders shall cause the dissolution of the company.

The heirs or assigns of a shareholder can not require either the placing of seals or an inventory of the property of the company. They must, in the exercise of their rights, rely upon the authorized inventories or balance sheets of the company.

Any action for the purpose of nullifying the indivisibility of shares is strictly prohibited to shareholders as well as to their assignees.

ART. 11. Shareholders are liable for the total amounts of their subscriptions only.

CHAPTER III.

ART. 12. The company is managed by a board composed of —— members.

The duration of their term of office is fixed at —— years. The board chooses from its members a president; it elects, also, either from its own members or from outside of the board, a secretary and a treasurer or a secretary-treasurer. Directors elected to these positions can hold office only during the period of time for which they were appointed directors.

ART. 13. The board of directors shall have power, within the limits imposed by the by-laws, to deliberate, transact, compromise, and decide any matter which has reference to the interests of the company, and especially it shall have power to—

(*a*) Regulate the general or specific conditions of every contract of sale, exchange, purchase, loan, and all other contracts relating to these operations; acquire all real estate in the cases mentioned in the last paragraph of article 4; resell it either at public or private sale;

(*b*) Receive all moneys, effectuate the withdrawal of deposits made at the General Savings Bank (*la Caisse Générale d'Épargne et de Retraite*), at the Bank of Deposits and Consignments (*la Caisse des Dépôts et Consignations*), or elsewhere, and determine the use of disposable funds; give general power to two directors to jointly sign all checks and receipts;

(*c*) Make use of all the forms of credit; loan upon mortgage; borrow with or without security; accept savings or other deposits within the limit indicated in the third paragraph of article 4; negotiate life insurance, even on third parties; repurchase policies;

a Under the Belgian law the sum to be paid in can not be less than 10 per cent of the par value of each share. That usually represents the only call made upon the capital stock.

(*d*) Consent to a stay of proceedings affecting mortgages, either recorded or demanded, executions, writs of injunction, and garnishments, decline the use of the privilege of and the action for cancellation, excuse the keeper of mortgage records from making official entries; agree to all subrogations, priorities, and transfers of rank of mortgages; decide all questions of priority—all this before as well as after payment;

(*e*) Represent the company, either as plaintiff or defendant, in all legal proceedings, take appeal, prosecute all executions against personal and real property until full satisfaction;

(*f*) Accept the supervision of the General Savings Bank (*la Caisse Générale d'Épargne et de Retraite*) under the guarantee of the state; in this case the board must agree: (1) To submit, first for approval, to the bank's board of directors every transfer of shares not paid up; (2) to give immediate notice of every payment which may be called in partial or complete liberation of shares of this kind; (3) to transmit to the directors of the said savings bank, also, a detailed and certified copy of papers mentioned in articles 62 and 63 of the law of May 18, 1873, concerning companies; and (4) to realize, within a period fixed by the board of directors of the bank, on all real estate which shall be forfeited to the company.

ART. 14. There can be no engagement entered into by the company with third parties which is not sanctioned by its board of directors or by the general meeting and not entered on the minutes in a special record book.

ART. 15. With the exceptions provided for in article 14, the board of directors may delegate to one of its members or to one of the superintendents or managers the daily conduct of the company's business. It appoints and dismisses its superintendents, managers, or other agents, determines their powers, and fixes their compensation and salaries.

The president of the board and the secretary, secretary-treasurer, and general manager are charged with the execution of all the resolutions of the board of directors.

ART. 16. The board shall meet at least once a month. Resolutions shall be passed by a majority vote; in case of a tie the president shall have the deciding vote. In exceptional cases, two directors may, on their own personal responsibility, make a decision to be submitted for ratification to the board of directors within eight days and to be spread upon the minutes as provided by article 14.

Except in cases of urgency declared and stated in the letter of convocation sent to all the directors by registered mail, the board can legally transact business only when at least one-half of its members are present.

ART. 17. The supervision of the company is confided to —— commissioners.

Their term of office is fixed at —— years.

ART. 18. The directors and commissioners are appointed and dismissed by the general meeting of the shareholders.

ART. 19. [Refers to temporary designation of directors and commissioners until the general meeting shall regularly elect, etc.]

ART. 20. [Refers to the general duties of directors and commissioners, and the security which they must furnish as a bond for faithful performance of duties.]

ART. 21. [Refers to the bonding of employees handling funds.]

ART. 22. The company is forbidden to keep more than —— francs in its treasury: all of the surplus shall be deposited to its current account in the savings bank created under the guarantee of the state.

CHAPTER IV.

ART. 23. [Designates the place and date of the general meeting.]

ART. 24. The convocation and deliberation of the general meeting shall take place in accordance with the prescriptions of articles 59, 60, and 61 of the law of May 18, 1873, concerning companies.

In order to take part in general meetings the holders of shares made out to bearer should make known ten days before the meeting the number and designation of their shares. They will be admitted on producing the original share or a certificate showing that the share has been deposited at the chief office of the company. Shares issued in the name of the holder entitle him to participate in the general meetings without further formalities. Each share gives the right to one vote; no person, however, can vote upon a number of shares exceeding the fifth part of the total number issued or exceeding two-fifths of the shares represented in the vote.

The right to participate in the meetings may be delegated, but only to a shareholder who himself has a right to be present.

A proxy may represent only one shareholder.

ART. 25. All decisions relative to the acceptance of savings or other deposits beyond the limits fixed in the third paragraph of article 13 are exclusively within the jurisdiction of the general meeting.

CHAPTER V.

ART. 26. On the 31st of December of each year the books shall be closed. The board shall take an inventory and make a balance sheet with an account of profit and loss.

The net profit, after deducting all general expenses, losses, interest, and depreciation shall be divided as follows: (1) 5 per cent to the reserve fund, according to the provisions of the law; (2) a dividend to shareholders, which shall not exceed 3 per cent of the paid-in capital; (3) the balance to the reserve fund.

ART. 27. The reserve fund shall be employed entirely in conformity with the exclusive object of the company.

CHAPTER VI.

ART. 28. The dissolution of the company before the expiration of its legal term can be decided upon by an extraordinary general meeting, representing at least one-half of the capital stock, and a majority of three-fourths of the votes present or represented.

ART. 29. The same meeting shall fix the method of liquidation, and shall choose by simple majority vote one or three liquidators.

ART. 30. In case of dissolution of the company, for whatever cause, there shall be deducted from the reserve fund, after repayment of the capital paid in by the shareholders, a sum equal to one-fifth of the interest paid or payable upon all advances made to the company during its existence by the General Savings Bank (*la Caisse Générale d'Épargne et de Retraite*). The sum so deducted shall be paid by the liquidators of the company to the said bank as an indemnity, on account of the very low rate of interest of two and one-half per cent which shall be agreed upon between the bank and the company in the contracts showing the said advances.

[Signatures and attestations follow.]

The companies which are constituted with the view of obtaining advances at 2½ per cent, viz, the loan companies, both joint stock and cooperative, are commercial companies; those which are constituted with the view of obtaining advances at 3 per cent, viz, building companies, both joint stock and cooperative, retain their civil character. The first category are properly called loan companies, having for their exclusive object the making of loans in order to favor the construction of, or purchase of real estate destined for, workingmen's dwellings; the second are companies having as their exclusive aim the construction, purchase, sale, and rental of dwellings for the working classes. The first class can not acquire real estate, must limit dividends to be distributed upon the capital paid in by the shareholders to 3 per cent, put aside as reserve all surplus, and finally bind itself in case of liquidation to hand over to the General Savings Bank such a part of this reserve as will make up the interest on advances made to 3 per cent. The second class may construct, purchase, sell, or rent; may distribute to shareholders a dividend beyond 3 per cent, and need only put aside as reserve the sum required by the law of 1873 in relation to these institutions. By-laws of all companies of either class must receive the sanction of the board of directors of the General Savings Bank. It is recommended also that the names of shareholders be sent with copies of the by-laws.

Before a company can commence operations subscribers must have paid in 10 per cent of their capital stock. An advance may then be obtained from the General Savings Bank equal to 50 per cent of the capital subscribed but not paid in by the shareholders. A sum equal to 55 per cent of the capital subscribed is thus immediately available for loaning purposes. This will be constantly increased as loans are made, by the first payments of borrowers. Further advances, amounting to three-fifths of the value of the property when completed, which shall exceed by at least a ninth the sum of the corresponding loans, are then made. The supervision of the board of directors of the General Savings Bank must be accepted and the value of the property settled by an expert chosen by the board and paid by the company. The first advance made by the General Savings Bank to the loan company is on the faith of the solvency of the original subscribers. Upon the value of the property itself the subsequent advance of three-fifths is made.

It is stipulated that the workingman shall be required to pay in first one-tenth of the value of his property. This proves to the company that he has a little something laid by and that he knows how to economize.

The loan company may be said to hold the first claim upon the acquiring purchaser. The value of the property is sufficient to meet the nine-tenths unpaid, and even if the workingman should fail to discharge his obligations at the outset, neither the loan company nor the General Savings Bank would lose anything by the operation.

It is much easier to understand the operation of this law by a concrete example than by an abstract statement. Let us suppose that a joint stock loan company is formed with a capital of $100,000. The 10 per cent that must be paid in upon capital stock equals $10,000. An advance from the General Savings Bank equal to 50 per cent of the capital stock subscribed, but unpaid, namely, $45,000, is immediately available. Thus the total sum immediately available is $55,000. Let us suppose that a workingman wants to build a house worth $2,000. He pays 10 per cent of this at the outset to the loan company, or what is equal to this step, perhaps, pays for a lot. The sum of $1,800 remains to be found. The loan company from its $55,000 advances to him $600, and the General Savings Bank then advances on the security of the property three-fifths of its value, which is $1,200. The sum of $200 has been paid in at the beginning by the workingman, and the condition that the total value of the property shall exceed by at least one-ninth the total loan is complied with. In paying off these obligations the $600 loaned by the company is first discharged. Then commences the liquidation of the loan from the General Savings Bank. While the money for the first loan comes from the savings bank, it does not come directly from the bank to the individual workman, but through a responsible intermediary, the loan company.

Cooperative loan companies receive advances equal to three-fifths of the value of the property, but the value of the property must exceed by at least one-ninth the total loan. This is the only advance made by the General Savings Bank. Building companies, whether joint stock or cooperative, may obtain advances equal to one-half of the value of the property belonging to them. In all cases every transaction with a third party must be ratified by the administrative board of the company.

These building companies are not required to limit their dividends, as are the loan companies, both joint stock and cooperative. The 3 per cent dividends in the latter case are on the capital stock paid in and not on the whole capital stock. In the case supposed $300 annually would be all that would be required to pay the prescribed dividend on the sums paid in on the shares.

In case a workingman has more than one-tenth of the value of his property which he wishes to pay down at the beginning, the sum loaned him by the company would be lessened; that is, taking the case already supposed, if he paid down $400 he would get from the company $400 instead of $600. The amount advanced by the savings bank on his property would not be diminished, except where the workingman pays, for example, $800. In such a case the advance made by the savings bank would be equal to the whole amount of the loan, that is, $1,200. The principle underlying the reimbursement to the loan company first is that the shareholders, who do not hold as good security as the savings bank, shall be first paid off, and this is an encouragement to public-spirited gentlemen to assist in the work of extending

the proprietorship of homes. But there is another reason, and that is that this provision gives added elasticity to the work of the company. More funds are available to continue its operations in loaning to other people. They need not wait until all houses have been paid for, but may turn over the receipts as they come in for the extension of the work to other beneficiaries. Thus a spirit of thrift engendered by a good example in a community is capable of almost indefinite extension upon a small original capital. The sums are simply turned over and over again, and as often as they are turned over the loans from the General Savings Bank are available. Taking the case supposed, in round numbers ninety-two workingmen, having $200 apiece to start with, or a plot of land of equal value, through the mediation of a joint stock loan company with a capital of $100,000, but of which the subscribers are never called upon to pay more than $10,000, can be provided each with a home worth $2,000.

The reason why cooperative companies are not permitted to secure advances upon their capital stock is that payments on the latter are entirely in the form of periodical installments and no sufficient guarantee is offered. There does not exist the same degree of solvency. Its operations alone can be taken into consideration, and therefore the advance accorded is based upon the value of something tangible, namely, the property itself.

Joint stock loan companies, though they receive the money at 2½ per cent, are allowed to charge 4 per cent per annum on their loans. The object is to secure a sound financial basis and to assure the payment of a 3 per cent dividend on the paid-up value of their shares. Three and one-half per cent, doubtless, would have answered, but with 4 per cent a reserve is accumulated. In order that this reserve may not become a temptation to the company and a dissolution be forced with the aim of dividing it, the law prescribes that after the dissolution of a joint stock loan company for any cause whatever there shall be deducted from the reserve, after paying back the capital stock of the shareholders, a sum equal to one-fifth of the total interest paid or payable upon the advances received during its existence from the General Savings Bank. The sum thus deducted is remitted by assignees of the company to the savings bank as an indemnity on account of the low rate of interest, namely, 2½ per cent, which it charged. Thus when the work of these companies ceases the savings bank is indemnified for the exceptional advantages which it has offered. The fear, therefore, that the general public who may be depositors will lose anything, even in an economic sense, by the policy of favoring workingmen's dwellings, can not be maintained.

In order that the bona fide workingman alone may benefit by the advantages accorded, the directors of the savings bank have fixed upon 5,500 francs ($1,061.50) as the maximum cost, land included, of a workingman's dwelling.

The plan provides that payments may be completed in ten, fifteen, twenty, or twenty-five years, as the borrower may elect. He may pay an installment every month, or make twenty-four or fifty-two payments annually. The following table shows an account of a loan of $1,000 where repayment is provided for in ten years:

STATEMENT OF AN ACCOUNT ON A TEN-YEAR LOAN OF $1,000.

Years.	Balance of account.	Loan from General Savings Bank.	Loan from loan company.
1	$1,000.00	$666.00	$334.00
2	992.00	666.00	256.00
3	835.00	666.00	169.00
4	744.00	666.00	78.00
5	650.00	650.00	
6	552.00	552.00	
7	450.00	450.00	
8	344.00	344.00	
9	233.00	233.00	
10	124.00	124.00	

Advances may be made by loan companies to anybody constructing or purchasing workingmen's houses. It is not necessary that the builder or acquirer shall occupy the structure himself. Only the workingman, however, may enjoy a reduction of taxes, registration fees, etc. In certain localities, agricultural districts, for example, and other places where no intermediary companies of this sort exist, a workingman, through a solvent neighbor who will go security for him, may get money from the General Savings Bank at 3 per cent. In the first instance the latter institution inquires of the local committee of patronage about the habitation which it is proposed to buy or construct. If approval is given, the guarantor treats with the workingman, with whom he opens a credit account guaranteed by a mortgage upon the property, and undertakes the collection of the periodical payments necessary to pay the savings bank the annual sum required. The workingman gives a note to his guarantor, who gets it discounted at the savings bank at 3 per cent. The interest is deducted in advance, and at the expiration of the term the note is renewed, after paying the installment necessary to extinguish the debt in the number of years agreed upon. The note is renewed, therefore, from year to year for an amount equal to the outstanding obligation.

In order to obviate defaults arising from guarantors becoming insolvent or from their death, the General Savings Bank protects itself in a manner permitted by the law of May 18, 1873. In order to secure to the workingman absolute negotiability of the contract, it is stipulated that the note can be indorsed only at the counter of the General Savings Bank, and that it may only benefit, after the creditor, the guarantor of the mortgage.

To facilitate relations between the companies, their borrowers, and the savings bank, the administrative board has prepared and places at the disposition of interested parties complete sets of model forms,

tables of annual payments, models of bookkeeping, etc. The minister of agriculture, industry, and public works, M. de Bruyn, in 1890 directed the well-known architect, M. Nève, and Baron de Royer de Dour to prepare a series of plans of different types of workingmen's dwellings. This volume, with all other data, is placed at the disposition of committees of patronage and local companies interested in the housing of working people to assist them in their work.

The Belgian law provides for the acquisition of a home to his family in case of the death of the wage earner before all payments had been made. In case of the death of the head of the family the creditor would have had to run the risk of losing money or would be obliged to dispossess the widow and children had not a happy combination of life insurance with repayment of loans been provided. A royal decree of July 6, 1891, permitted the General Savings Bank to engage in life insurance operations in connection with its housing activities, under the law of August 9, 1889. It is authorized to insure the life of the borrower in order to guarantee reimbursement of the loan in case of the death of the party insured at any time during the period. An insurance bureau, having distinct accounts, is annexed to the General Savings Bank. Annual financial statements of this department are published. Farr's life tables are the accepted basis of calculation, and the premium rates are fixed at 3 per cent per annum and 3 per cent for expenses. Two-thirds of the sum set aside for expenses is turned over to the General Savings Bank at the end of each year, and with this the latter undertakes to bear the whole of the business expenses. The remaining one-third is put aside as a reserve fund for the insurance department. Should this reserve become exhausted the General Savings Bank must make up the deficiency by advancing sums to be ultimately repaid from the insurance department. Money is advanced for the construction or purchase of a house, and a policy of insurance on the life of the debtor is taken out by the creditor. Appropriate declarations set forth among other things the actual state of the health and the habits of the person to be insured, and these furnish the basis upon which the insurance department of the General Savings Bank determines whether or not to accept the candidate. Refusal may be made without filing reasons. The premium is indivisible, and must be paid in advance for each insurance year. Premiums are paid at the local agency of the General Savings Bank, where the contract is executed.

The person insured has the right of repurchase, the value being fixed as follows: The sum assured is reduced in proportion to the number of premiums paid and the whole number of premiums stipulated in the contract and discounted at the rate of 3 per cent for the time from the last premium payment to the maturity of the policy. The insurance is surrendered without any other formality in case of nonpayment of the premium within thirty days from the date of its falling due, but the

beneficiary receives a sum equal to the repurchase value previously mentioned. The beneficiary may within five months after default demand the resuscitation of his policy, but he must produce a new declaration accompanied by a medical certificate. The insurance may then become operative upon the payment of the accrued premium increased by 3 per cent, and by restoring the repurchase commutation, augmented by interest at 3 per cent per annum.

The beneficiary of an insurance policy is obliged to inform the managing director of the insurance department of any change of occupation.

Insurance is nullified and all premiums forfeited in the following cases:

(*a*) If declarations were made in bad faith or have been withheld, which if disclosed would have shown an increase of risk.

(*b*) Neglect of the beneficiary to make notification of changes of occupation, etc.

(*c*) In case of death as a result of excessive habitual alcoholic indulgence.

(*d*) In case of suicide.

(*e*) In case the beneficiary secures the death or aids in injuring the health of the insured.

The death of the individual insured must be certified within three months, and the amount of the policy will be paid to the beneficiary at the end of the insurance year in which the death took place, or it may be paid at once, less a discount of 3 per cent.

The law permits a workingman as old as fifty-five years to contract insurance.

The annual premiums on life insurance policies of $1,000, where the duration of contract is ten, fifteen, twenty, and twenty-five years, applicable to persons from 21 to 55 years of age, appear in the following table. This assures the repayment of the $1,000 at the maturity of the policy or on the death of the insured if he should die during the period.

ANNUAL PREMIUMS AT 3 PER CENT ON A MIXED INSURANCE OF $1,000.

Age at next birthday (years).	Duration of contract.			
	10 years.	15 years.	20 years.	25 years.
21	$91.83	$58.89	$42.84	$33.56
22	91.92	58.99	42.96	33.69
23	92.01	59.10	43.08	33.88
24	92.10	59.21	43.21	34.00
25	92.19	59.32	43.34	34.16
26	92.29	59.44	43.49	34.33
27	92.38	59.56	43.66	34.51
28	92.50	59.70	43.80	34.70
29	92.61	59.84	43.97	34.91
30	92.74	59.99	44.15	35.13
31	92.87	60.15	44.35	35.37
32	93.00	60.32	44.56	35.63
33	93.15	60.51	44.78	35.91
34	93.31	60.71	45.03	36.21
35	93.49	60.92	45.30	36.53
36	93.67	61.15	45.58	36.88
37	93.87	61.40	45.90	37.26
38	94.09	61.67	46.23	37.67
39	94.32	61.96	46.60	38.12
40	94.57	62.28	46.99	38.60
41	94.84	62.63	47.41	
42	95.12	63.00	47.88	
43	95.44	63.40	48.38	
44	95.78	63.84	48.92	
45	96.15	64.32	49.51	
46	96.56	64.83		
47	97.01	65.39		
48	97.49	66.01		
49	98.03	66.68		
50	98.61	67.42		
51	99.26			
52	99.90			
53	100.60			
54	101.36			
55	102.20			

The repurchase value of a policy of mixed insurance for $1,000 in case of nonpayment of premium is given in the annexed tabular statement:

REPURCHASE VALUE OF A POLICY OF MIXED INSURANCE FOR $1,000 IN CASE OF THE NONPAYMENT OF THE mth PREMIUM.

m.	Duration of contract.			
	10 years.	15 years.	20 years.	25 years.
2	$76.64	$44.07	$28.51	$19.68
3	157.88	90.79	58.74	40.53
4	243.93	140.28	90.75	62.63
5	334.99	192.65	124.63	86.01
6	431.30	248.03	160.46	110.73
7	533.09	306.56	198.33	136.87
8	640.60	368.39	238.33	164.47
9	754.08	433.65	280.55	193.61
10	873.79	502.49	325.09	224.34
11		575.07	372.04	256.74
12		651.56	421.53	290.89
13		732.11	473.64	326.86
14		816.92	528.51	364.72
15		906.15	586.24	404.56
16			646.95	446.46
17			710.79	490.51
18			777.87	536.80
19			848.34	585.43
20			922.33	636.49
21				690.09
22				746.33
23				805.32
24				867.19
25				932.04

A table is given below showing the amount to be repaid annually on a loan of $1,000 at 4 per cent, which is the figure demanded by joint stock loan companies, where the duration of contract varies from ten to twenty-five years, both with and without the insurance feature:

AMOUNT TO BE PAID ANNUALLY BY THE BORROWER OF $1,000 AT 4 PER CENT WITH AND WITHOUT INSURANCE.

[The annual payments in case of a loan with insurance are obtained by adding to the insurance premium to be paid to the bank (see p. 147) the sum of $40, being the interest due on the loan.]

Age at next birthday (years).	Duration of contract.							
	10 years.		15 years.		20 years.		25 years.	
	Without insurance.	With insurance.	Without insurance.	With insurance.	Without insurance.	With insurance.	Without insurance.	With insurance.
21	$123.29	$131.83	$89.94	$98.89	$73.58	$82.84	$64.01	$73.56
22	123.29	131.92	89.94	98.99	73.58	82.96	64.01	73.69
23	123.29	132.01	89.94	99.10	73.58	83.08	64.01	73.88
24	123.29	132.10	89.94	99.21	73.58	83.21	64.01	74.00
25	123.29	132.19	89.94	99.32	73.58	83.34	64.01	74.16
26	123.29	132.29	89.94	99.44	73.58	83.49	64.01	74.33
27	123.29	132.38	89.94	99.56	73.58	83.66	64.01	74.51
28	123.29	132.50	89.94	99.70	73.58	83.80	64.01	74.70
29	123.29	132.61	89.94	99.84	73.58	83.97	64.01	74.91
30	123.29	132.74	89.94	99.99	73.58	84.15	64.01	75.13
31	123.29	132.87	89.94	100.15	73.58	84.35	64.01	75.37
32	123.29	133.00	89.94	100.32	73.58	84.56	64.01	75.63
33	123.29	133.15	89.94	100.51	73.58	84.78	64.01	75.91
34	123.29	133.31	89.94	100.71	73.58	85.03	64.01	76.21
35	123.29	133.49	89.94	100.92	73.58	85.30	64.01	76.53
36	123.29	133.67	89.94	101.15	73.58	85.58	64.01	76.88
37	123.29	133.87	89.94	101.40	73.58	85.90	64.01	77.26
38	123.29	134.09	89.94	101.67	73.58	86.23	64.01	77.67
39	123.29	134.32	89.94	101.96	73.58	86.60	64.01	78.12
40	123.29	134.57	89.94	102.28	73.58	86.99	64.01	78.60
41	123.29	134.84	89.94	102.63	73.58	87.41		
42	123.29	135.12	89.94	103.00	73.58	87.88		
43	123.29	135.44	89.94	103.40	73.58	88.38		
44	123.29	135.78	89.94	103.84	73.58	88.92		
45	123.29	136.15	89.94	104.32	73.58	89.51		
46	123.29	136.56	89.94	104.83				
47	123.29	137.01	89.94	105.39				
48	123.29	137.49	89.94	106.01				
49	123.29	138.03	89.94	106.68				
50	123.29	138.61	89.94	107.42				
51	123.29	139.26						
52	123.29	139.90						
53	123.29	140.60						
54	123.29	141.36						
55	123.29	142.20						

The augmentation involved by insurance is very small indeed. The insurance feature is due most largely to the wisdom and sagacity of M. Léon Mahillon, the present managing director of the General Savings Bank. It was not rendered obligatory at the outset on account of the hostility shown by the intermediary companies, but in order to force them to undertake insurance the board of directors of the General Savings Bank, November 10, 1892, issued a decree stipulating that advances after January 1, 1893, at 2½ per cent would be made only to those accepting the life insurance feature. Previously about one-half of the business done was on this basis, but the new regulation has had such a marked effect that nearly all the companies now include insurance in their operations.

The number of companies formed for the purpose of promoting the proprietorship of workingmen's dwellings in the autumn of 1893 was sixty-four. Fifty-six of these were joint stock in form and eight cooperative. The total capital stock of the former class amounted to 4,434,600 francs ($855,877.80). A commentary and full information as to proceedings are given in two most interesting pamphlets, one written by M. Léon Mahillon and the other by M. Léon Meerens.

An important point which, it is claimed, has been settled by the Belgian law is the feasibility of national moneyed institutions, such as a great savings bank under the guarantee of the state, engaging largely in the work of assisting workingmen to become proprietors of homes. A national savings bank offers advantages over any local institution. In the first place its operations extend throughout the whole country, and local branches exist everywhere. The conditions upon which the loans are given are uniform throughout the land. There are certain distinct business advantages claimed for the practice of loaning through an intermediary. Account keeping and receiving and recording weekly or monthly payments would be an enormous task for a national or state institution to undertake. Under the Belgian system the intermediary companies attend to all such work. Moreover, local organizations can watch over the construction and see that the houses built are such as befit the neighborhood. The fourth advantage claimed for the employment of an intermediary is this: When debtors fail to meet their obligations, local companies, acting in accordance with their principle of social helpfulness, can much better take into consideration the circumstances bringing about default and can judge whether leniency should or should not be extended.

Those in a position to know say that formerly the idea of building workingmen's houses directly by the government was exceedingly popular among the laboring element of Belgium. Recently they have begun to take a much greater interest in companies created under the law, and to avail themselves of the benefits offered. The increase in the number of deposits, all guaranteed by the government, has gone steadily on, showing that there has been no lack of confidence in the bank since housing operations were begun. The total increase in deposits during the four years from 1886 to 1889, inclusive, was 93,527,010 francs ($18,050,712.93); during the next four years, viz, 1890 to 1893, inclusive, it was 107,593,676 francs ($20,765,579.47).

The complete text of the Belgian law of August 9, 1889, is as follows:

TEXT OF THE BELGIAN LAW OF AUGUST 9, 1889.

ARTICLE 1. There shall be established in each administrative district (*arrondissement*) one or more committees authorized:

(*a*) To encourage the construction and rental of healthy dwellings for workingmen, and their sale to workingmen for cash or on annual installments;

(*b*) To study all that concerns the healthfulness of houses occupied by working people and the hygiene of the quarters where they are chiefly located;

(*c*) To encourage the development of thrift and insurance, as well as of institutions of credit or of mutual relief and of pension funds.

These committees shall be called committees of patronage, and shall be composed of not less than five nor more than eighteen members, appointed for a term of three years, to wit, three to ten members by the permanent delegation in the provincial council and from two to eight members by the government. They may be subdivided into sections. A secretary for the committees and their sections shall be appointed by the permanent delegation.

The committees' methods of performing their duties, and their relations to the government, the provincial and communal administrations, and the medical commissions shall be regulated by royal decree, without interfering, however, with the powers of these administrations in the matter of hygiene and public health.

ART. 2. The committees of patronage shall institute and distribute prizes for orderliness, for cleanliness, and for thrift.

They are empowered, for this purpose, to receive gifts and legacies of personal property, as well as subsidies from public authorities.

ART. 3. Committees of patronage, or their members, shall suggest either to the communal administration, provincial authority, or the general government such measures as they shall deem pertinent.

They shall make an annual report of their transactions to the minister of agriculture, industry, and public works. This report shall be communicated to the superior council of hygiene, and each commune shall receive a copy of the part which concerns it.

ART. 4. Before decreeing an expropriation by zones in the quarters especially inhabited by working people, the government shall take the advice of the committee of patronage upon the conditions to be imposed for the resale of lands comprised in such expropriation.

ART. 5. The General Savings Bank (*la Caisse Générale d'Épargne et de Retraite*) is authorized to employ a part of its disposable funds in loans made to aid in the construction or purchase of workingmen's houses, after having first asked the advice of the committee of patronage.

These loans shall be like, as regards their form and duration, the temporary or fixed investments of the bank.

ART. 6. The board of directors of the savings bank shall determine the rate and the conditions of said loans with the approval of the minister of finance.

ART. 7. In default of payment at maturity of sums due to the bank realization on the security which has been furnished shall be proceeded with in conformity with articles 4 to 9 of the law of May 5, 1872.

The demand shall be addressed to the chief judge of the court of first instance. This tribunal shall take cognizance of demurrers, and notice will be given to the civil authorities.

ART. 8. The General Savings Bank (*la Caisse Générale d'Épargne et de Retraite*) is authorized to negotiate mixed life insurance operations for the purpose of guaranteeing the reimbursement at the end of a fixed period, or upon the death of the insured if occurring before that time, of loans made for the construction or purchase of a dwelling.

The general conditions as well as the premium rates of this insurance shall be submitted for royal sanction.

The royal decree shall indicate the table of mortality, rate of interest, and the deduction for administrative expenses, which shall have served as a basis for the fixing of premium rates.

ART. 9. The provinces, communes, hospitals, and relief bureaus (*bureaux de bienfaisance*) may receive gifts and legacies for the construction of workingmen's homes.

ART. 10 (as amended by law of July 18, 1893). There are exempted from the personal tax on the rental value, the doors, windows, and furniture, and from all other similar provincial or communal taxes the workingmen or former workingmen incapable of laboring, who not being proprietors of other property than that in which they live and that which they cultivate, occupy, either as owners or as tenants of nonresident landlords, a habitation with an assessed revenue not exceeding 72 francs ($13.90) in communes of less than 3,000 inhabitants, 96 francs ($18.53) in communes of 3,000 to 20,000 inhabitants, 120 francs ($23.16) in communes of 20,000 to 40,000 inhabitants, 144 francs ($27.79) in communes of 40,000 to 100,000 inhabitants, and 171 francs ($33) in communes of 100,000 inhabitants or more.

For the purpose of carrying out these dispositions the communes are classified according to the total population as determined at each decennial census, and the revenue from dwellings not yet assessed, or not assessed in separate parcels, is determined in the same manner as land taxes.

However, when an agglomeration extends over several communes these communes or their agglomerated parts can, in so far as the rate of the assessment revenue entitles to the exemption, by royal decree be placed in the category to which belongs the most populous commune.

This exemption is not granted, first, to workingmen who let any part of their dwellings to more than one subtenant or for purposes of trading of any kind whatever; second, to workingmen who cultivate on their own account pieces of land more than 50 ares (1.2355 acres) or above 100 ares (2.471 acres), according as among the parcels of ground other than the garden there are or are not some of which the assessed rental valuation is beyond 50 francs ($9.65) per hectare (2.471 acres).

ART. 11. Companies having for their exclusive object the construction, purchase, sale, or rental of houses destined for working people shall assume the joint stock or cooperative form without losing their civil character by submitting to the conditions, in the first case, of section 4, and in the second case, of section 6, and in both cases, of section 8 of the law of May 18, 1873, amended by the law of May 22, 1886.

ART. 12. The acts and minutes relative to the formation, modification, or dissolution of companies having for their object the operations enumerated in article 11 are exempt from stamp tax, and are registered gratis, unless they contain matters subject to the proportional tax for registration.

Extracts or copies of these acts and minutes are likewise exempt from the stamp tax.

Neither are they subject to the payment of dues and registry fees.

ART. 13. There are exempt from the stamp tax and the formality of registration all acts under private signature not embraced in the terms of the preceding section and all minutes and acts concerning exclusively the general business management, as well as the warrants of the founders for the establishment of the company and authorizations of shareholders in connection with their relations with the company.

ARTS. 14 to 19. [Refer to reduction of taxation upon incomes of companies or public administrative bodies engaged in transactions having

reference to the purchase, building, sale, or rental of workingmen's houses. These reductions are very considerable, and are designed by the government especially to favor the work of companies of this sort.]

ART. 20. Article 6 of the law of July 5, 1871, is repealed.

However, houses constructed before January 1, 1889, by joint stock companies having for their object the construction, purchase, sale, or rental of houses destined for working people shall continue to enjoy the benefits of exemptions fixed by articles 1 and 2 of the law of March 25, 1828.

The law of August 12, 1862, concerning fees for registration and mortgage transfers, and the law of June 20, 1867, relative to the joint stock form of companies for providing workingmen's houses, are repealed.

ART. 21. Personal tax, so far as it concerns the last two quarters of the fiscal year 1889, including the provincial and communal taxes, shall not be collected from those who by article 10 cease to owe it, and those who have paid shall be reimbursed.

The tax shall be considered as not existing and will not figure in the determination of the electoral franchise. The restitution shall be made without further formality.

FRANCE.

In France the necessity for encouraging popular proprietorship of houses has long been appreciated. Little, however, has been done except in a few specific centers. Of the 10,000,000 francs ($1,930,000) voted by the French Government in 1852 for workingmen's houses 6,000,000 francs ($1,158,000) were given to the Convalescent Homes at Vincennes and Vesinet, and 2,000,000 francs ($386,000) for the establishment of block dwellings on the boulevard Diderot, which are now occupied by persons in fairly comfortable circumstances. They rent for 106,000 francs ($20,458) annually. The 2,000,000 francs ($386,000) which remained were employed in subsidizing workingmen's dwellings, but the conditions imposed by the architect and the charges were so severe that a great many enterprises failed. The Messrs. Pereire, who received part of this subsidy, built in the rue Boursault a vast building, containing 204 dwellings, but this enterprise failed because of the severity of the rules and regulations for governing tenants. The emperor himself constructed forty-one houses in the avenue Daumesnil, which he offered to the workingmen's society on condition that its members subscribe 1,000 shares of 100 francs ($19.30) each. This was done and the donation was made. The association borrowed 200,000 francs ($38,600) from the *Credit Foncier* and constructed block dwellings at Grenelle and Belleville. This scheme likewise failed, probably from incapacity on the part of the directing board. These repeated failures discouraged parties who were interested in the housing problem. Among these single individuals who took hold of the work on their own account with the aim of making money, while not ignoring philanthropy, was M. Emile Cacheux, who has built largely in other parts of Paris. He has built mostly for rental, but especially with the object of permitting tenants to purchase the property, offering them exceptional advantages, some-

times advancing three fourths of the sum necessary to make repayment in fifteen years.

Two or three years ago a bill was introduced into the Chamber of Deputies by M. Jules Siegfried, ex-minister of commerce and industry. This measure became a law November 30, 1894. The abstract which follows shows that while there are important differences in the functions of local committees, in the constitution of intermediary agencies, and as regards remissions of taxation, the cardinal principles of loans from national savings institutions and the combination of life insurance with repayment of loans by installments are the same as in the Belgian law of August 9, 1889.

LAW OF NOVEMBER 30, 1894, RELATING TO CHEAP DWELLINGS.

ARTICLE 1. There shall be established in each department one or more committees on cheap dwellings.

The object of these committees is to encourage the building of healthful and cheap houses, either by individuals or companies, with a view to rent them or to sell them, to be paid for at the expiration of a fixed period or in installments, by persons not owning houses, such as workmen or employees living principally by their work or salary, or by those interested, for their own personal use.

ART. 2. These committees may receive grants from the state, from departments, and from communes, as well as gifts and legacies, under the conditions prescribed by article 910 of the civil code for establishments of public utility.

Nevertheless they can not own any real estate other than is necessary for the transaction of their business.

They can make inquiries, open competitions in architecture, distribute prizes for orderliness and neatness, give pecuniary encouragements, and further, generally, employ the natural means to arouse the initiative in the building and improvement of cheap dwellings.

Should the committees cease to exist, their assets after liquidation shall devolve, under advice of the superior council instituted in article 14 hereafter, to the companies for building cheap dwellings, to provident associations, and to public relief bureaus (*bureaux de bienfaisance*) within the jurisdiction.

ART. 3. The expenses for rent and for salaries, the allowance to the secretary of the committee, and the fees for attendance which may be allowed in place of mileage to members of the committee not living in the locality where meetings are held, may be fixed by the general council in charge of the departmental budget.

ART. 4. These committees are instituted by decree of the president of the republic, with the advice of the general council (of the department) and of the superior council on cheap dwellings. The same decree determines the extent of their jurisdiction and fixes the number of their members within the limit of not less than nine nor more than twelve.

A third of the members of the committee is named by the general council, which chooses them from the general councilors, the mayors and the members of the chamber of commerce, or of the consulting chambers of arts and manufactures within the committee's district.

The other two-thirds are named by the prefect, one third from persons specially versed in questions of hygiene, building and social eco-

nomics; the other one-third from members of societies for building cheap dwellings, mutual provident and savings societies, and registered trades unions.

These committees so formed make their by-laws, which are submitted to the prefect. They elect their president and secretary. The latter can be taken from outside the committee.

These committees are named for three years.

Their commissions may be renewed.

ART. 5. The advantages granted by the present law apply exclusively:

In that which concerns the individual dwellings destined to be acquired by the persons mentioned in article 1, or built by them, to real estate of which the net income liable to the land tax, determined according to the law of August 8, 1890, does not exceed by more than one-tenth;

In communes of less than 1,000 inhabitants, 90 francs ($17.37); of 1,001 to 5,000 inhabitants, 150 francs ($28.95); of 5,001 to 30,000 inhabitants, 170 francs ($32.81); of 30,001 to 200,000 inhabitants, and in those which are situated within a radius of 40 kilometers (24.85 miles) of Paris, 220 francs ($42.46); of 200,001 inhabitants and more, 300 francs ($57.90); in Paris, 375 francs ($72.38).

In that which concerns individual houses or block buildings destined to be rented, to those of which the net income taxable, for their entirety or for each of the lodgings composing them and destined to be rented separately, does not amount to a sum greater than those which are indicated above for each category of communes.

ART. 6. The public relief bureaus (*les bureaux de bienfaisance*), hospitals, and asylums can, with the authorization of the prefect, employ a portion of their patrimony, which must not exceed a fifth, in the building of cheap houses, within the limits of their charitable jurisdiction, as well as in loans on mortgages to companies for building cheap houses, and to loan companies (which not building themselves, have for their object the facilitating the buying or the building of such houses), and in bonds of these companies.

The Bank of Deposits and Consignments (*la Caisse des Dépôts et Consignations*) is authorized to use as much as a fifth of the reserve arising from the employment of the funds of the savings banks which it has built up, in negotiable securities of the building and loan companies mentioned in the preceding paragraph.

ART. 7. The life insurance fund, instituted by the law of July 11, 1868, is authorized to enter into, with the purchaser or builders of cheap houses, who pay off the price of their houses by means of annual payments, temporary contracts of insurance, having for their purpose to guarantee on the death of the insured (if it happens within the period), the paying of the annual payments remaining due.

The maximum amount of the capital assured must not exceed the sum deduced from the rate of capitalization of 4.27 per cent applied to the net income stated in article 5.

Every signer of an application for insurance made under the conditions of the first paragraph of the present article must reply to the questions and submit to the medical examination which shall be prescribed by the policies. In case of rejection of the application no reason need be assigned. The insurance goes into effect with the signing of the policy, notwithstanding all clauses to the contrary.

The sum assured will be, in the case of the present article, transferable in totality, under the conditions fixed by policies.

The duration of the contract shall be fixed in such a manner as not to carry over any final payment of premium beyond the age of 65 years.

ART. 8. [Provides for maintaining the property undivided and for the use of the wife and children in case of the death of the head of the family owning under conditions of the present law.]

ART. 9. [Provides for certain exemptions from taxation.]

ART. 10. [Prescribes certain conditions and formalities of sale and payment.]

ARTS. 11 and 12. [Provide for the exemption of companies from stamp tax and registration fees if their by-laws limit dividends and they comply with certain other conditions.]

ART. 13. [Provides for exemption from license fees and income tax under certain conditions. Extends benefits of law to companies already formed, under certain conditions.]

ART. 14. There shall be established in connection with the ministry of commerce and industry a superior council on cheap dwellings, to which all the regulations to be made in accordance with the present law, and in general all questions concerning cheap dwellings shall be submitted.

The local committees shall address to the ministry each year, in January, a detailed report of their work. The superior council shall give a résumé with remarks in a general report addressed to the president of the republic.

ART. 15. A rule of public administration shall determine the proper measures to insure the application of the preceding prescriptions, and especially: (1) Organization and duties of the superior council of cheap dwellings and of local committees; (2) the dispositions which the by-laws of building and loan companies should contain in order that these companies may receive the advantages of the law; (3) the conditions under which the life insurance fund should issue temporary insurance; (4) the procedure to be followed in the application of article 8.

AUSTRIA.

The Austrian law of February 9, 1892, aims to encourage the provision of cheap and healthy homes for workingmen. Special remission of taxation in favor of this class of dwellings is the main feature of the new enactment. The exemption, except in cases of tenements where the floors are below the level of the street, may be enjoyed for twenty-four years after completion, provided: (*a*) That the floor space of single-room tenements be not less than 15 square meters (161.46 square feet) nor more than 30 square meters (322.92 square feet), and of larger tenements not less than 40 square meters (430.55 square feet) nor more than 75 square meters (807.29 square feet); (*b*) that the annual rental per square meter (10.76 square feet) of habitable floor space be not more than 1 florin 75 kreutzers (about 59 cents) in Vienna, 1 florin 45 kreutzers (about 49 cents) in other cities of 10,000 inhabitants and upward, and 80 kreutzers (about 27 cents) in all other localities; (*c*) that the buildings be let exclusively for laborers' dwellings; and (*d*) that the buildings do not pass otherwise than by inheritance into the hands of persons who would have been ineligible to the exemption had they built them themselves.

Parties authorized to erect such dwellings are: (*a*) Communes, societies of public utility, and organizations for promoting the welfare of workingmen; (*b*) workingmen's cooperative societies; and (*c*) employers for their workmen.

The law is experimental, exemption privileges being offered only on houses constructed within ten years from the date of its enactment.

GREAT BRITAIN.

State intervention in the housing of labor in England goes back more than forty years. Under the influence of Lord Shaftesbury, a philanthropist, the enactment of 1851, which was especially designed to meet the needs of working people, was passed. The act has remained a dead letter, never having been utilized. Since that time a series of measures has been placed on the English statute books, so that to-day corporations are authorized, indeed compelled, to provide accommodation where expropriations have taken place for at least one-half of the persons dispossessed. An attempt, however, is always made to dispose of property to private individuals, under special restrictions as to the character of construction and the rents to be charged. Builders are not anxious to acquire this class of property, and so it usually happens that corporations are compelled to build and become landlords.

The principal statutes authorizing public authorities to directly interest themselves in the housing of the masses are as follows:

1. *The laboring classes lodging houses act, 1851.*—This act permitted certain populous local divisions in England to raise money by mortgage on the rates for the purpose of providing lodging houses for the working classes, the houses to be regulated by commissioners appointed under the act. Tenement lodging houses, not common lodging houses, were referred to in this act.

2. *The laboring classes dwelling houses act, 1866.*—This statute authorizes the public works loan commissioners to make advances for the purpose of assisting in the purchase of land and buildings, or in the erection, alteration, and adaptation of buildings to be used as dwellings for the laboring classes. The effect of this act is to authorize the council to erect dwellings for the laboring classes. Under this enactment, for example, the city of Liverpool erected the Saint Martin's cottages, which are mentioned in Chapter IX.

3. *The artisans' and laborers' dwellings improvement act, 1875.*—This act applies to the city of London, the metropolis exclusive of the city of London, and urban districts of 25,000 population or over. It provides for clearing "unhealthy areas" and the rearrangement and reconstruction of streets and houses within such areas. The scheme must have the approval of the local government board, and must provide for as many persons of the working classes as may be displaced. It was under this act that the Victoria Square artisans' and laborers' dwellings and the Juvenal laborers' dwellings referred to in Chapter IX were built.

4. *The municipal corporations act, 1882.*—Under this law corporations are authorized, with the approval of the treasury, to make grants or leases for terms not exceeding nine hundred and ninety-nine years of any land belonging to them for the erection of workingmen's dwellings. The corporation is allowed to improve this land by making roads, drains, walls, and fences at such an expense as the treasury may approve.

The corporations are empowered to issue, in any grant or lease of the land, provisions binding the grantee or lessee to build in a prescribed manner, to repair and maintain the buildings, and they may prohibit any division of the site of the buildings or any addition to or alteration in their character without their consent. The cost incurred by the corporation in carrying into execution this act is to be defrayed out of the borough fund or borough rate or by money borrowed.

5. *The housing of the working classes act, 1890.*—This enactment is a modification and consolidation of all previous enactments. Large insanitary areas may be more effectively dealt with, and, as compared with previous practice, may be more economically acquired. Fifty per cent of the dispossessed must be provided for on the same site or in the neighborhood by the party displacing them.

England is remarkable for the part which municipalities have played in the housing question. In Liverpool, Glasgow, Huddersfield, Birmingham, and London buildings for working people have been erected and are still owned and operated by the municipality. The results accruing from municipal ownership in most cases are shown in Chapters IX, X, and XI, where details of the enterprises appear. The corporation of Manchester, so writes Mr. Henry Simon under date of April 2, 1894, is constructing a building, regardless of cost, for laborers' dwellings in the neighborhood of the remodeled property of the Manchester dwellings company. Dr. Alfred Hill, medical officer of health in Birmingham, in 1890 said that the council had then decided to erect twenty-two model workingmen's dwellings, more in the fulfillment of a promise than from any actual need of houses. Financially it is not expected that they will prove a success. In Glasgow the larger part of the housing facilities furnished by the corporation are utilized by artisans; in Liverpool nearly one-third of the corporation tenements are occupied by the same class. The laboring element which most needs help has not received from municipalities anywhere the attention which one would naturally expect.

Lord Shaftesbury stated to the English royal commission that it was a very difficult thing in London to procure sites for building model dwellings. There was often an unwillingness to sell land for the purpose. He suggested that Parliament should have the right to condemn land for this purpose on the ground that the work was one of public utility.

CHAPTER VIII.

RENT COLLECTING AND OTHER AGENCIES FOR IMPROVING THE HOUSING OF THE POOR.

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RENT COLLECTING AND OTHER AGENCIES FOR IMPROVING THE HOUSING OF THE POOR.

The inhabitants and their surroundings must be improved together. This is the principle upon which Miss Octavia Hill proceeds, and her successful organization and prosecution of rent collection, combining friendly intercourse and helpful relations with tenants, have given her world-wide renown. Miss Hill has happily combined the functions of the landlord and the friendly visitor. Promptness and regularity in the payment of rent are placed side by side with cleanliness, ventilation, and good order. All these things are shown to depend largely upon tenants themselves, and so amelioration is secured through self-help. Miss Hill's work is especially successful with the lower element.

She believes that the destructive and criminal classes can not be dealt with by any existing society or any building corporation, because the difficulty with these people is not financial but moral. They must be trained. That is what her system does, and there is no other method. The only way to deal with such people is to make goodness profitable. It is not a question of class, but of character. It is a question of personal influence, and the landlord or his representative is the one who alone can wield it. Miss Hill's statements are so important that extended mention of her methods of work is herewith presented. She insists that moral reformation is the only thing that can deal satisfactorily with the destructive class. If people will buy houses for the sake of managing them then they can get a hold upon such persons. That can not be done by a society. The management depends very much on judgment of character. You must notice when a man is doing better and when he is not, a fact which you can not bring up before a committee and prove it. Thus men must be held and at the same time a plan devised to gradually make them feel the benefit of the care that is being exercised over them. When old houses are bought a few improvements are made at once, such as putting the water supply and the roofs in order, but other improvements are added in proportion as the tenants' own care allows, and they become more capable of valuing and not abusing them.

Voluntary workers are a necessity. They are better than paid workers, and can be had in sufficient numbers. Miss Hill selects and trains her assistants. She has paid workers only during July and August, when many of the volunteers are away on their holidays. The ordinary system of collection is as follows: A man goes around on Monday morning and asks for the rents that are due and forthcoming. A certain

proportion of the rents are brought by the honest, sober, and industrious element, a proportion which just enables the man to carry on the house or to make what percentage he requires. The bad, destructive tenant does not pay, and therefore the good and honest pay for him. Miss Hill's method exactly reverses this. She stimulates hope and energy by a most elaborate system of detailed work, enabling tenants to profit by their own care. In the worst courts she makes a certain allowance in every house for repairs, and then says to the inhabitants: "Now, if this is not spent in destruction it can be spent in improving your habitation." They thus choose what improvements shall be added, and gradually the condition of the house is improved.

Individual action is necessary in the case of the very poor and destructive classes. Companies will not receive them because it does not pay to do so, but Miss Hill acquires houses in which they already reside, either through purchase or control, and then tells the tenants that they must either improve or leave. She says that this is generally effective, and that in one purchase involving thirty-two houses it was necessary to turn out the residents of only two of them. The place has been quite orderly for twelve years. Miss Hill's method is to proceed slowly. Tenements are purchased which are overcrowded. For a few weeks things are allowed to go on in this way and then gradually the tenants are moved into larger rooms, or compelled to take additional space. Miss Hill says she has numbers of drunkards. If she thinks they will be improved she keeps them. To retain them or not is purely a question of discretion. This is undoubtedly a far-reaching despotism; but it should be remembered that it is exercised with the view of bringing out the latent powers of the people and trying to make them feel responsible for themselves within certain limits. Almost the only rule that Miss Hill insists on is that no lodgers shall be allowed to room with the family. This is absolute, except in the case, perhaps, of an old woman who is permitted to take in another one. She says there is a danger, in every large system of volunteers, of crotchets, caprices, and fashionable follies getting hold of people. She says, however, that fashionable people are soon gotten rid of; they will not work. The prime requisite among workers is that they possess tact. The ideal is a combination of interest in the people with a certain amount of business training.

Miss Hill says she never found any trouble in securing capital; that her work has increased in a geometrical rather than an arithmetrical ratio, and that since she has decentralized it, it has increased from every center. Miss Hill charges 5 per cent for collection of rents. This goes to the fund for training workers; all of it is thus distributed. There are very few arrears in property managed by Miss Hill and her assistants. In taking a house where there are arrears the plan is to take those tenants who pay promptly and inform them that they will have a bonus of so much per week so long as they pay regularly; then those behind

are told that they will have the same bonus if they pay regularly, and that the bonus is to go in liquidation of their arrearages. This works well. Repairs are made gradually so that as little inconvenience as possible may be caused. Drainage and water supply are put in without removing the inhabitants, but when internal painting is done they have to be removed temporarily. An arrangement is made with every tenant not in arrears to have some improvements made in his apartments. Frequently he executes this himself on Saturday afternoons.

Whenever the management of property belonging to private parties is taken, an amount equal to 5 per cent income on the property is paid to the owners. All that remains after paying taxes, insurance, and the contribution to the redemption fund goes to repairs and improvements. Arrearages in rent are avoided by prompt action. Eviction is used as a last resort. Miss Hill keeps a separate cashbook and ledger for each block of buildings or group of houses. These are audited every six months, and a copy of the report is sent to each owner privately. Returns may differ somewhat, but never more than 5 per cent has been paid, everything else going for improvements. In only two cases have returns fallen below 5 per cent.

Miss Hill has under her personal direction from forty to fifty helpers, trained and untrained. She works now only in Deptford, Southwark, and Marylebone. The other sections of London have been handed over to former helpers, conspicuous among whom are Miss Cons and Mrs. Reid; also Toynbee Hall, as well as other college settlements. Miss Hill is averse to giving statistics of the value of property under her control, the amount of rentals received, and the number of families visited, since she deprecates publicity. Her belief is that if matters get talked about too much the people with whom she deals will read of it in the newspapers and imagine that they are the victims of some charity scheme. They would deeply resent this, and it would result in her losing her hold upon them. Advices, however, indicate that in 1887 Miss Hill and her friends had 5,000 dwellings in their charge. She believes that there is not the same scope now for her work as formerly, the attitude of the people being much more independent. Again, there are many more model tenement buildings than there used to be, and in these tenants have to submit to authority and obey regulations.

There are abundant testimonies to the efficiency of rent collecting as practiced by Miss Hill. Her system has been adopted with uniform success in many large cities in Europe and to a smaller extent in this country. In other cases ladies have assumed the management of the model buildings and employed others to attend to the business of receiving rents. The moral influence of Miss Hill's system has been to admit women to a greater extent into the management of housing companies, a practice which has undoubted advantages. Several of the large London dwellings companies acknowledge that their success,

financially and morally, only began with the introduction of rent collecting through lady volunteers. An organization known as the Tenement Dwellings Company has made a practice of buying houses, fitting them up, and turning them over to lady rent collectors.

A narrative of the circumstances which led Miss Hill to commence her work may not be without interest. One day, while attending a sewing reunion or some other church meeting, her sympathy was aroused in hearing about the woes of a certain woman. Impulsively she exclaimed: "I wish I had some houses to look after!" "Do you, though? Are you in earnest?" responded many of her friends. Shortly after, when dining with John Ruskin, she repeated the incident. He said: "Is it money or time you need?" She responded, "principally time." Whereon he replied that her case was hopeless. Ruskin ultimately said: "Go to my lawyer and have him buy three houses. They shall be in your hands. You can carry out your theories of visiting and rent collecting. If the money is lost, no matter. If you succeed, more will be forthcoming." At this time Miss Hill did not think much of the financial and practical sides of the work, whereas this is what Ruskin emphasized when he said: "If you can make it pay you will not only have plenty to do, but others will follow you." Ruskin's lawyer did not approve of so Utopian a scheme and tried to delay by finding objections against all property which Miss Hill suggested as eligible. Upon referring her suspicions to Mr. Ruskin, the latter authorized her to employ her own solicitor. She did so, and three small houses were speedily found, where operations were begun.

Miss Hill has not confined her housing activities exclusively to rent collection. Being an ardent lover of small homes as distinguished from tenement dwellings, she has built with her own money thirty-two cottages in Southwark, near the bridge which crosses the Thames, which she rents at a remunerative figure, receiving annually from 4 to 5 per cent dividend. The cottages are small but prettily disposed, with gardens in front. There is a large open space opposite where she has erected a hall for evening recreation, a gallery where women may sew and children play in rainy weather, and a room in which men may smoke and enjoy social intercourse.

Miss Hill's rent collecting scheme occupies a significant place in the housing problem. It deals with the lower element, with which the greatest difficulties have been found. The experience of a landlord in Mulberry bend, in New York city, demonstrates that even the worst persons, with careful watching, can be made good tenants. The success which has attended Miss Hill's efforts furnishes hope, if not certainty, that practically all but social incorrigibles may come within the purview of remunerative effort.

Mention has just been made of the cooperation in this phase of social work by London college settlements. Everywhere similar organizations ought to fall into line.

The Glasgow Presbytery Commission, in their report in 1891, speaking of the formation of a corporation to purchase and rent renovated slum property, and the rightful relation thereto of the church, say they "can not too strongly enforce their opinion that no scheme for providing better houses for the poor can either be remunerative or of substantial service unless combined with successful efforts to improve their habits and elevate their social life. An association formed for the purchase and reconstruction of old tenements would deal resolutely with the habits of the tenants. No investment of this kind will be remunerative or of the smallest value unless the people who occupy these houses are persuaded or compelled to live clean and wholesome lives. * * * It is the function of the corporation to insist that all houses shall be made habitable and provided with all conveniences necessary for decency. It is essentially the function of the Christian church to organize such agencies and to bring to bear such influences as shall move the poor to live decent and clean lives in the decent and clean houses provided for them. The work of the corporation and the work of the church must go hand in hand."

The Edinburgh Social Union conducts its work upon a commercial basis. Its aim is to bring together all who feel that the miseries of the poor arise, in large measure, from want of sympathy and fellowship between different classes, and that philanthropic efforts to remedy the evil should apply those methods which economic science suggests as tending most permanently to the mental and moral development of the community. The members of this society believe that the immediate question to face is how to make the best of present conditions, how to raise the standard of comfort without waiting for the operation of legislative changes. They recognize, moreover, the chief material hindrances to the well-being of the poor in their unwholesome dwellings, the discomforts, and the lack of healthy enjoyments, and they purpose beginning their crusade against intemperance and other such evils by providing opportunities to cultivate higher tastes and pleasures. Practical training in some of the easier branches of the decorative and industrial arts is offered by the union. There are classes in wood carving, modeling, joinery, bookbinding, etc. The union also maintains means for recreation, evening calls, and entertainments. Its great work, however, is in connection with the care and management of houses, which is conducted on the following lines:

1. Each property is bought in the name of the owner, who takes the entire risk, after getting the report of the architect and a careful statement from the superintendents as to rental and probable expenses.

2. Payment of rent is strictly enforced, by which means a more regular return is obtained on the capital invested, and the injustice of making the thrifty suffer for the thriftless is avoided.

3. When there is a surplus of rent beyond what is needed for working expenses and to pay 5 per cent interest on the capital, it is

expended on the property or retained to be available when required for that purpose.

4. Improvements are carried out gradually as they come to be appreciated, and the tenants themselves are, as far as possible, employed in the work.

5. Rents are collected weekly by ladies and gentlemen who undertake this task as a means of gaining influence among the tenants, and helping them with their counsel and sympathy.

6. The principle is maintained throughout of bettering the condition of the poor, not by lowering their expenditure on rent, which would merely tend to depress the rate of wages, but by giving them greater value for their money, and thus extending to them higher standards of comfort.

Lady rent collectors have taken charge, and have, in addition to enforcing rules and discipline, taken an interest in tenants. When the union commenced its work, in 1885, it was with great difficulty that money could be obtained to purchase and improve condemned property. Now it frequently has to refuse proposed loans of money. There is a similar society in Glasgow, with a large capital stock. Mr. John Cooper, city engineer of Edinburgh, referring in an official report to the local union, says the work of this association appears to be conducted on remarkably sound and healthy principles, the aim being to avoid any pauperizing tendency, and rather to create and foster habits of cleanliness, sobriety, self-respect, and self-dependence. It has supplied at a serious crisis in the condition of the slums the requisite elements for partial arrestment of the lapsing process, and has laid the foundations for an upward lift to a section of our lapsed masses. Mr. Cooper further states that the grand remedy will be either that such operations as those of the union be increased and extended or that a cheaper class of dwellings, suitable for the very poor, be provided with adequate light, air, space, modern sanitary conveniences, etc., independent accesses, and efficient means of isolation, all of which will tend to improved habits and tone among occupants.

The housing work of the Edinburgh Social Union began in November, 1885. At the close of the first year three properties were under its care; at the end of the second year it managed eight properties, affording accommodation to 200 families, and at the end of the fiscal year 1893 fifteen separate estates were supervised. Financially all undertakings have been successful. The union believes that from ten to fifteen families are quite as many as a single rent collector ought to take in charge. They have found that a conspicuous advantage of the system of constant supervision is prevention of rapid deterioration in property. Where rent is collected simply by an agent, who never does anything unless forced into it by tenants, it is no wonder that deterioration occurs. On the other hand, the rent collector acts on the principle that "a stitch in time saves nine."

Mrs. McBride, in speaking of the Edinburgh Social Union, says:

I must now try to show you how our undertaking has not only been a success from a business point of view, but how it has benefited the tenants, and brought comfort into many a home where it was unknown before. The best proof of this being the case is that our houses never stand a day empty—unless we keep one for a week or two for any particular tenant. A great worker among the poor told me lately that she heard so much about our houses, and that she had known some people wait for months to get into them. No smoky chimneys, no broken windows, no houses without shelves and presses are allowed; whenever a pipe gets out of order or anything goes wrong it is at once rectified, adding greatly to the comfort of the poor tenant. We have certain definite rules for the tenants about cleaning their chimneys, washing the stairs and passages, etc. I must say that it is very easy to insist on their carrying them out; all that is necessary is that the rent collectors should visit the place regularly, and see that it has been done. It is really quite extraordinary how quickly our influence becomes noticeable on the cleanliness of the houses; a few words of reproof where absolutely necessary, and a few words of encouragement where an effort to do better is observable, have an equally good effect. It is only in our capacity of landlords and rent collectors that we can insist on cleanliness, fresh air, order, etc.; from a mere visitor the tenant would not receive advice and reproof in the same spirit.

The Glasgow Kyrle Society was formed largely to conduct rent collecting on the plan of Miss Octavia Hill. Ladies visit the slums once a week to give advice and aid to the poor. Many ladies when absent from the city on vacation return expressly for these duties. The profits of the society from rent collecting are devoted to sanitary improvements, such as putting in water and perfecting the plumbing arrangements. The ladies also furnish and maintain club rooms for workingwomen. An excursion or picnic is given once a year, for which each person attending is charged 4s. (97 cents), the society making up the remainder of the cost.

The slum posts of the Salvation Army ought to be mentioned in this connection. They have done admirable work in reforming individuals as well as localities.

Besides rent collecting agencies and social unions, there are organizations doing less direct, but thoroughly important, work toward improving the housing of the poor. The intervention of the church has been well exemplified in the investigation carried on during 1890 by the Glasgow Presbytery Commission. The scope of the inquiry was limited to families whose heads earned under 20s. ($4.87) per week. The number of male adults of this class in Glasgow is estimated on good authority to be about 50,000. Of course the number of women is much larger. The Presbytery acted on the view that knowledge of the facts was a necessary preliminary to action. Since the report has been made a dwellings company, which has built model tenements and which has also bought and renovated slum property, has been established and is doing useful and remunerative work.

The Central Institute for Improving the Condition of Working People (*Central-Stelle für Arbeiter-Wohlfahrtseinrichtungen*) in Berlin was

organized in October, 1891. The object was to bring together persons from all parts of Germany who were identified in various ways with the work of improving the condition of working people. It established a central repository or museum for the various publications on these subjects, reports of philanthropic societies, plans of workingmen's dwellings, etc. The institute has an annual income of 25,000 marks ($5,950). The ministry of commerce gives a yearly subsidy of 2,000 marks ($476), and furnishes the services of a high official, Dr. Post, as supervisor. The first annual report dealt with the question of the housing of working people in Germany.

Perhaps the most conspicuous example of an institution of this sort is the French Society for Promoting Cheap Dwellings (*Société Française des Habitations à Bon Marché*). The object of this society, which was founded in December, 1889, and which has been recognized to be of public utility by the French government, is to encourage construction by private parties, manufacturers, or by local companies of cheap and healthy dwellings, and also to assist in the improvement of existing dwellings. It seeks especially to facilitate the means whereby employees, artisans, and laborers may acquire their own habitations. For this purpose the association proposes to place at the disposition of private parties or companies plans, models of statutes, and rental contracts, as well as all necessary documentary information. Loaning, borrowing, purchase of lands, or construction of houses directly by the society is forbidden. Its methods of operation are:

1. To communicate to parties interested all information which may be demanded, especially the constitution of existing societies, their annual reports, models of their leases, plans and sketches of their buildings, their financial organization, etc.

2. The publication of a bulletin for the purpose of recording the progress made in reference to cheap housing in France and abroad.

3. The organization of public meetings with a view to popularizing the ideas of the association, to bring about the amelioration of dwellings, and the creation of local societies for constructing workingmen's houses.

4. The organization of prize competitions devoted to expositions of the best and most economical plans or the best combinations, in order to facilitate construction.

5. The encouragement in every way, even by pecuniary subsidies, as far as the budget may permit, of construction or of sanitation of cheap dwellings, as well as the creation of societies having this object in view.

This society has effected a profound awakening of interest in the housing problem. Conferences are held throughout the large cities of France, where speakers represent the association. When prizes were offered for the three best models of houses for the Saint Denis company, forty were submitted. Within five years from the date of its foundation fifteen strong workingmen's dwellings companies were organized under its auspices.

CHAPTER IX.

MODEL BLOCK BUILDINGS.

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MODEL HOUSING IN GENERAL.

This chapter and the two immediately following, which deal with model housing under different phases, need but a brief introduction. The word model indicates pretty clearly the character of the work which is aimed at, and one or two other chapters, notably that upon economic and ethical aspects, outline some of the more useful and important results.

In several parts of this volume the testimony of such experts as Lord Shaftesbury, Miss Octavia Hill, and Sir Sydney Waterlow has been quoted, showing how improved dwellings improve their inhabitants. There is one other authority who ought to be mentioned with those previously quoted—Mr. Clement Dunscombe, ex-city engineer of Liverpool. He says: "The education of the poorest classes to fully appreciate the benefits accruing from their being housed in healthy dwellings, provided with all the requisite sanitary arrangements and appliances tending to promote cleanly and tidy habits, can only be gradual and accomplished by successive stages, and must precede their intellectual and moral elevation." The author by no means takes a pessimist's view of this difficulty, which is too generally prejudged. Speaking from actual experience and careful observation, he believes that by far the larger proportion of the deserving poorest classes in the metropolis and other large cities would quickly avail themselves of better habitations, and would soon be brought to appreciate their improved surroundings, and have gradually created in them a desire to maintain their habitations in a clean and healthy condition if such dwellings were provided for them within easy reach of their work at a rental which they could afford to pay.

In the view of this expert it is lack of the opportunity to lead a more civilized existence and not the inclination to remain as they are which characterizes the situation of the poorer element among city dwellers. The inherent difficulties in connection with the provision of model housing for this class, and the methods of meeting them, have been discussed in the chapter on economic and ethical aspects. Mr. Dunscombe's statement requires emphasis here as hopeful testimony that ethical advance may be expected from improved living environments.

Over one hundred model enterprises are mentioned in this and the two following chapters. No census has been attempted, but probably all which are of importance in the countries visited have been noticed. Very complete schedules of questions were prepared, calling for a great variety of technical and financial detail. The one thing kept in view from the beginning has been to make the present inquiry of practical use. Plans and descriptions are presented, together with figures, showing the character of the people housed, the relation between rents and incomes among tenants, the ratio between rents charged in these dwellings and in others fairly similar in the same vicinity, the net profit from fiscal operations, and a variety of other interesting and important matter, because it is believed that a stimulus may be offered to model housing activities, and that the most practical mode of procedure is to place positive information at the disposal of everyone who contemplates giving practical attention to this subject.

This motive furnishes an explanation for what might otherwise seem a tedious reiteration of detail or a plethora of purely statistical fact. It has not always been possible to verify the relation existing between the rentals charged in model tenements and dwellings and those exacted for fairly similar accommodation in the neighborhood. The percentages must be considered as approximations and are so stated in the text, and are usually based on the authority of officials of the companies, etc., giving the information.

These model enterprises are divided into three classes, viz: Model block buildings—that is, buildings composed of blocks of houses each sheltering more than four families; model small houses—that is, houses built contiguously or detached, each accommodating from one to four families; and model lodging houses—the latter term, with one or two exceptions, denoting buildings giving shelter, usually temporary, to single persons. The various enterprises are naturally differentiated into five leading groups:

1. Those that are conducted on a purely commercial basis.

2. Those which are semiphilanthropic in aim—that is, where the commercial element is by no means lost sight of, but where dividends are limited to a sum equal to, or slightly inferior to, normal commercial rates on investments of the highest class.

3. Philanthropic trusts, bequests, and gifts, where no division of profits occur and where the income earned is added to the capital in order to perpetuate operations.

4. Municipal model enterprises, namely, where municipalities have built houses to rent, either for the sake of furnishing an example to private enterprises (which has usually been the case) or because there was an unwillingness on the part of builders to undertake the housing of people displaced from expropriated and insanitary areas.

5. Houses built by private employers of labor for the benefit of their help.

Building and loan associations, properly called, are omitted from the present work, except in a few rare instances, and these are cases where the erection of model houses rather than securing a profit to the investors was the object. Cooperative building and loan associations have had a remarkable development in the United States. The Ninth Annual Report of the United States Commissioner of Labor shows that 5,838 exist in this country, including more than 1,745,725 shareholders, and having net assets of $450,667,594 including profits of $80,664,116. On the continent of Europe institutions of this kind are not so popular as in England or the United States. There are said to be about 3,000 of such institutions in England. Three-fourths of the associations reported that 314,755 homes had been acquired. An official report in 1888 showed that the English associations possessed an undistributed surplus of £2,019,695 ($9,828,845.72). Similar societies exist in fair numbers in the Scandinavian countries, and their growth is being encouraged in Germany, Belgium, and France.

Model housing of working people on a large scale began first in England, and it has received its chief development in that country. Just how many agencies are in existence it is impossible to say, but it is estimated on fairly good authority that model block buildings in London alone are now housing upward of 150,000 people. Nearly one-third of this number are accommodated by the Peabody Donation Fund and the Improved Industrial Dwellings Company.

Mr. George E. Arkell, in Charles Booth's Labour and Life of the People of London, has classified the existing block dwellings of London into various categories. One hundred and fifteen blocks, containing 6,859 tenements and sheltering 37,911 people, are reported as bad or very bad from the standpoint of light, air, and sanitation; and 360 blocks, including 28,921 tenements and housing 151,197 people, are set down as fair, good, or very good. It would, therefore, appear that in round numbers 190,000 of London's inhabitants dwell in block dwellings of different classes.

In a corner of France a new form of effort was tried to stay the evils of the factory system. In 1835 M. André Koechlin built in the neighborhood of his factory thirty-six dwellings, each comprising two bedrooms, a kitchen, a scullery, and a cellar. With each dwelling was a garden.

He fixed the rental at a moderate price. He made the condition that only a workingman could rent one of these dwellings, and on the further condition of cultivating his garden himself, sending his children to school, making each week a deposit in the savings bank, and paying 3 cents to the sick fund.

In 1850 the French Parliament passed a law authorizing local authorities to close to habitation dwellings dangerous to public health, and in all the large cities there was a sanitary revival. It was soon recognized, however, that it was necessary to do something more than to pull down.

The government, therefore, came forward, and in 1852 gave the sum of 10,000,000 francs ($1,930,000) for the improvement of workingmen's dwellings in large manufacturing cities. Part of this sum was employed in subsidies to companies and associations having as their aim the procuring of healthy and convenient lodgings for working people. Two kinds of effort resulted from these subsidies. One is typified in the so-called Cité Napoléon situated in the rue Rochechouart, Paris, containing 194 dwellings fitted up with baths, laundries, drying rooms, and day nurseries. This sort of dwelling, stimulated by subsidies, was reproduced in different parts of France; but it was very soon seen that the money given for these buildings, dubbed by the populace "barracks," was misplaced. People did not wish to go into them. They did not like this outward and visible sign of class distinction. The inhabitants were, as a rule, low salaried clerks, old men with meager annuities, or persons of similar social condition. The large laboring element was not benefited. The second form of effort is that represented by the work of the Industrial Society of Mulhouse. In 1853, after having studied in England the attempts there made for providing small homes for workingmen, it was determined with the subsidy available to encourage model effort. The preamble to the constitution presents remarkably enlightened views for that period. This document says:

Convenience and good order in the dwelling have a greater influence than one would suppose at first sight upon the morality and welfare of a family. He who finds the common home only a miserable shelter, dirty, in disorder, and where one can breathe only nauseous and vitiated atmosphere, takes no pleasure in it and flies to the saloon, there to pass a large part of his leisure hours. So the interior of his dwelling becomes almost strange to him and he soon contracts baneful habits, which end almost always in misery. If, on the contrary, we can offer to these same men clean and inviting dwellings, if we can give to each a little garden where a man will find useful and agreeable occupation and where, waiting for his modest harvest, he will know how to appreciate it, shall we not have solved in a satisfactory manner one of the most important problems of social economics? Shall we not have contributed to bind together the sacred bonds of the family and have rendered a veritable service to our laboring class and to society itself?

A capital of 355,000 francs ($68,515) was subscribed by the manufacturers belonging to the Industrial Society of Mulhouse and the government granted a subsidy of 300,000 francs ($57,900). The capital was subscribed on condition that the dividend should not be greater than 4 per cent. In order to encourage proprietorship a discrimination was made in favor of those who wished to purchase; rents were fixed to rent-paying tenants at from 7 to 8 per cent of the cost of construction, whereas the rentals to purchasers were fixed at 5 per cent. Installment payments were so adjusted that in thirteen years and five months the workingman would become proprietor.

There is one phase in connection with model block buildings which needs slight discussion, and that is their healthfulness. Considerable controversy on this subject has been waged both pro and con. All of the agencies reporting facts regarding model block buildings for this inquiry offer universal testimony to the absence of epidemics during the whole period in which the buildings have been in existence. Sir Sydney Waterlow says of the buildings of his company that diseases have never been known to spread, even during the great epidemic of smallpox in the seventies. The death rate from typhoid fever is an excellent test of sanitary condition. In the buildings belonging to the Peabody trust this has been shown to be one-half of the general rate for London. There is fairly conclusive testimony, too, on the score of general healthfulness.

Dr. Arthur Newsholme, in an admirable address before the Royal Statistical Society, in 1891, on the "Vital statistics of the Peabody buildings and other artisans' and laborers' block dwellings," gives the result of a thorough investigation into the subject. Answering at the outset the objection that the population living in the Peabody buildings is a select population, he shows that, so far as age and sex distribution are concerned, they were, in the year 1889, much less favorably constituted than the population of London as a whole. There was a considerably higher proportion per 1,000 persons in the Peabody buildings of population under 15 years of age than for the whole of London, whereas the proportion of persons per 1,000 of population in the 5 and 10 year age periods from 15 to 75 was in every instance save one in favor of the metropolis. The following is a summary of his conclusions:

1. In the year 1889, contrary to expectation, and notwithstanding the high birth rate, the age distribution of the population of the Peabody buildings was less favorable to a low mortality than that of London as a whole.

2. The death rate of the Peabody buildings averaged about 2 per 1,000 lower than that of London during the twelve years ending with 1885. During the four subsequent years the death rate of the Peabody buildings has remained about stationary, while that of London has shown a further decline; thus making the metropolitan death rate approximate more closely that of the Peabody buildings.

3. The death rate at different groups of ages is lower in the Peabody buildings than for the whole of London, with the exceptions of the ages 0 to 5 and 25 to 35.

4. The infantile mortality is much lower in the Peabody buildings than for all London. During the nine years 1882 to 1890 it averaged in London 151.9, in the Peabody buildings 139.2 per 1,000 births.

5. The death rate from diarrhea is slightly lower, and from typhoid fever only half that of the whole metropolis.

6. On the other hand, the diseases more immediately due to direct infection (scarlet fever, diphtheria, and still more, whooping cough and

measles) are more fatal, and therefore probably more prevalent. If the Metropolitan Asylums' Board would admit cases of measles into their hospitals the mortality from measles might be very much reduced.

7. The death rate from phthisis and other tubercular diseases is slightly higher in the Peabody buildings than for all London.

8. Farr's formula as to the increased mortality with increased density of population has no application to the Peabody buildings.

9. The true density that should be considered is the number of persons to each room, not the number of persons on a given acre.

Later statistics than those which Dr. Newsholme has presented are now available. The report of the trust for 1893 shows that the birth rate during that year was 4.1 per 1,000 above that of all London, while the infant mortality was 126.4 per 1,000 births, or 37.9 below that of London. The total death rate per 1,000 among inhabitants of the buildings, including all tenants dying in hospitals, was 17.6 per 1,000, or 3.7 per 1,000 below the average of the metropolis. Dr. Newsholme especially emphasizes that his statistics may not be construed into an argument in favor of block dwellings. He says that they refer solely to that class of block dwellings, unfortunately too rarely found, where every tenement is well lighted and ventilated.

It is only fair to state that other authorities, notably Dr. Russell of Glasgow, believe that no fair comparison can yet be made, since the population in model buildings is largely a select one, and that the buildings themselves are as yet so recent that results have not had time to show themselves.

There need be no caviling as to the relative merits of block dwellings and small individual homes. Unquestionably, where there is a possibility for both the latter are to be preferred. No matter how excellent the accommodation, no matter what precautions are taken to secure self containment and isolation, home in a tenement building can never be what it is where a single roof covers a single family. In large cities, however, it is scarcely possible to exercise a choice, especially in those localities where the need for improved housing is greatest. The block dwelling alone is a financial possibility. Whether electric transit will so change the topography of cities that small houses, or at best cottage flats, will suffice to afford accommodation for all classes of working people, the future alone can disclose. In the meantime, effort should be directed towards promoting model housing of that kind which is most practicable.

UNITED STATES.

IMPROVED DWELLINGS COMPANY, BROOKLYN, NEW YORK.

This corporation is the outgrowth of a successful experiment in providing model tenements for working people by Mr. Alfred T. White. Nearly twenty years ago he made a private investment and succeeded so well that he induced other members of his own family to cooperate in the work. The result has been the erection of buildings accommodating nearly five hundred families, and the most satisfactory demonstration which has probably yet occurred in this country of the financial success which may attend this form of philanthropy.

The Riverside buildings are chosen as the model for description, because they are the most recently constructed and embody more of modern improvements. Financially, they have not been as successful as the Tower buildings, but the reason is principally because they have not had the advantage of such skillful supervision as has been given the latter. Superintendence in these, as in other matters, is largely responsible for success or failure.

The Riverside buildings front 307 feet on Columbia place, 201 feet on Joralemon street, 288 feet on Furman street, or nearly 800 feet in all. Three sides of the quadrangle have been built up, the fourth remaining open toward the south. The total superficial area of the lot is 60,200 square feet, only one half of which has been built upon. The open space is in the form of a court, bounded on three sides by the rear of the buildings. The greater part of it is laid out in grass plots, intersected by gravel walks. A generous portion has been set aside as a playground for children. A paved driveway and a paved walk completely surround the court. In the center is a music pavilion, where a band of eight pieces plays two hours every Saturday afternoon during the summer season, at the expense of the proprietor. This whole space is given up to the free use of occupants. The principal playground for children during stormy weather is the verandas and the paved cellars. A portion of the court only is used for drying clothes. For this purpose rows of wooden T-shaped supports, with wire stretchers over them, are provided.

The buildings contain six stories and are 60 feet high. They are of brick. The exterior walls vary from 1 to 2 feet in thickness. The roofing is of gravel. The buildings are almost absolutely fireproof. The staircases are not only built of incombustible material, slate set in solid brickwork, but are separated from the rest of the building by brick walls about a foot thick. A balcony of slate, protected by an iron railing, connects the stairway with a hall, by which in each case two or three dwellings are reached. Most of the dwellings have, in addition, a private hallway, and while the apartments themselves and the halls are not fireproof, the balconies and staircases, which contain nothing

inflammable, are easily reached. Fire escapes exist in the rear and are accessible directly from all dwellings. Iron passageways on the roof connect the three blocks. The means of escape are perfect on account of the peculiar construction of the staircases just referred to.

There are cellars paved in cement-covered concrete, which serve as storerooms for fuel and other property. Storage stalls are provided with locks. The cellars are also used for bath and boiler rooms. The buildings have no basements.

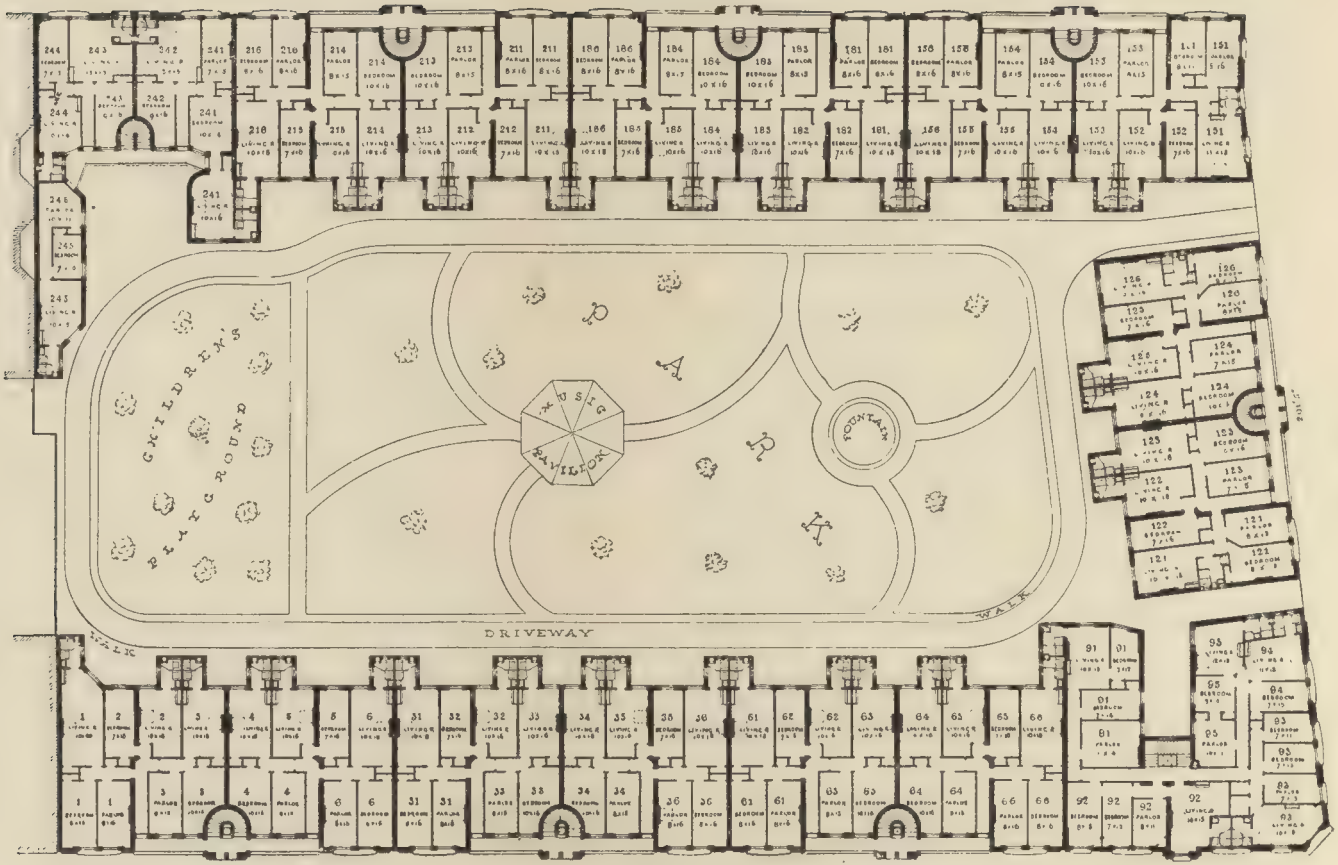
The dwellings in the upper stories are reached by means of outside front balconies leading from the staircase to interior hallways about 3 feet wide. The latter open to the private halls of the individual dwellings. The outside balconies are provided with railings made of sheet iron fastened on wrought iron bars. The balcony floors are of slate; the interior hall floors are of wood. Interior hall walls are plastered and tinted. The plaster on the walls is carried down to the floor behind the foot boards, so that insects can not accumulate there. Stairs are kept clean by regular employees. The rooms, with very few exceptions, open directly upon either a private or common hallway. Each balcony and hallway is used by three families in common. There is no regulation against any of the families sitting or standing in the corridors so long as they do not block up the way or cause annoyance. Loitering on the stairways is prohibited. The windows on the ground floors have iron railings. Every room communicates directly, either by doors or windows, with the open air. Each dwelling has through ventilation from front to rear, the three-room apartments by means of their own doors and windows, and the two-room apartments through their windows and the hallways. The doors have transoms. No further system of ventilation seems necessary.

The dwellings are self-contained. Each family has a water-closet and scullery with a sink, stationary washtub, and ash shoot, occupying a space of about 7 feet 6 inches by 5 feet in an extension at the rear and reached directly from the living room or kitchen. The scullery proper and the water-closet each have separate outside windows. The average number of persons using a single closet is four to five. Water-closets have flushing tanks overhead containing about three gallons. These are discharged by pulling a chain. The system in use is known as the "Philadelphia hopper." The water supply is carried up in a corner of the living room where the pipes are least affected by cold weather. The faucet is in the scullery, but the water can be shut off by a stop-cock in the living room whenever there is danger of the pipes freezing. The washtubs and sinks are trapped separately from the water-closets. The traps are ventilated by vent pipes carried above the roof. Soil pipes are open at the roof and serve as rain conductors. They pass down along the back extension wall and through the rear cellar wall to the sewer, avoiding any horizontal drains under the buildings. The cesspools are all trapped and there is no possibility of escape of sewer



RIVERSIDE BUILDINGS, BROOKLYN, NEW YORK.

PLAN NO. 13 A.

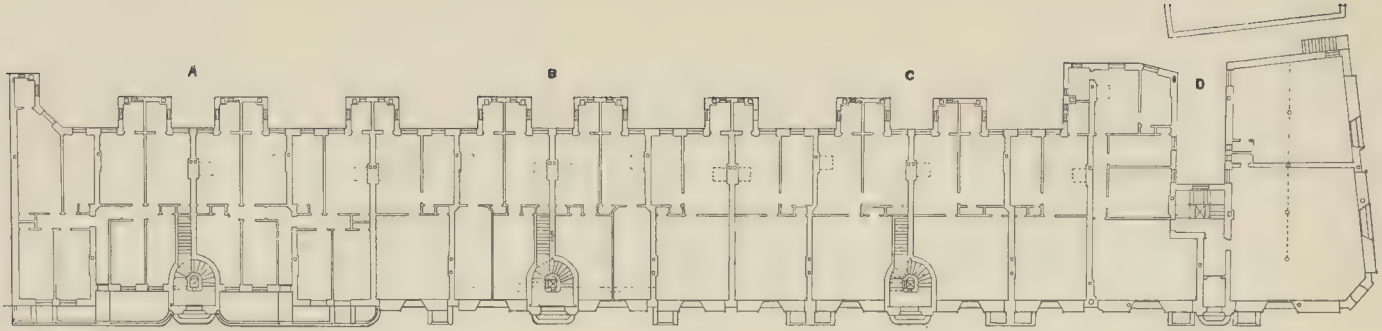


COLUMBIA PLACE.

Upper floors

RIVERSIDE BUILDINGS, BROOKLYN, NEW YORK.

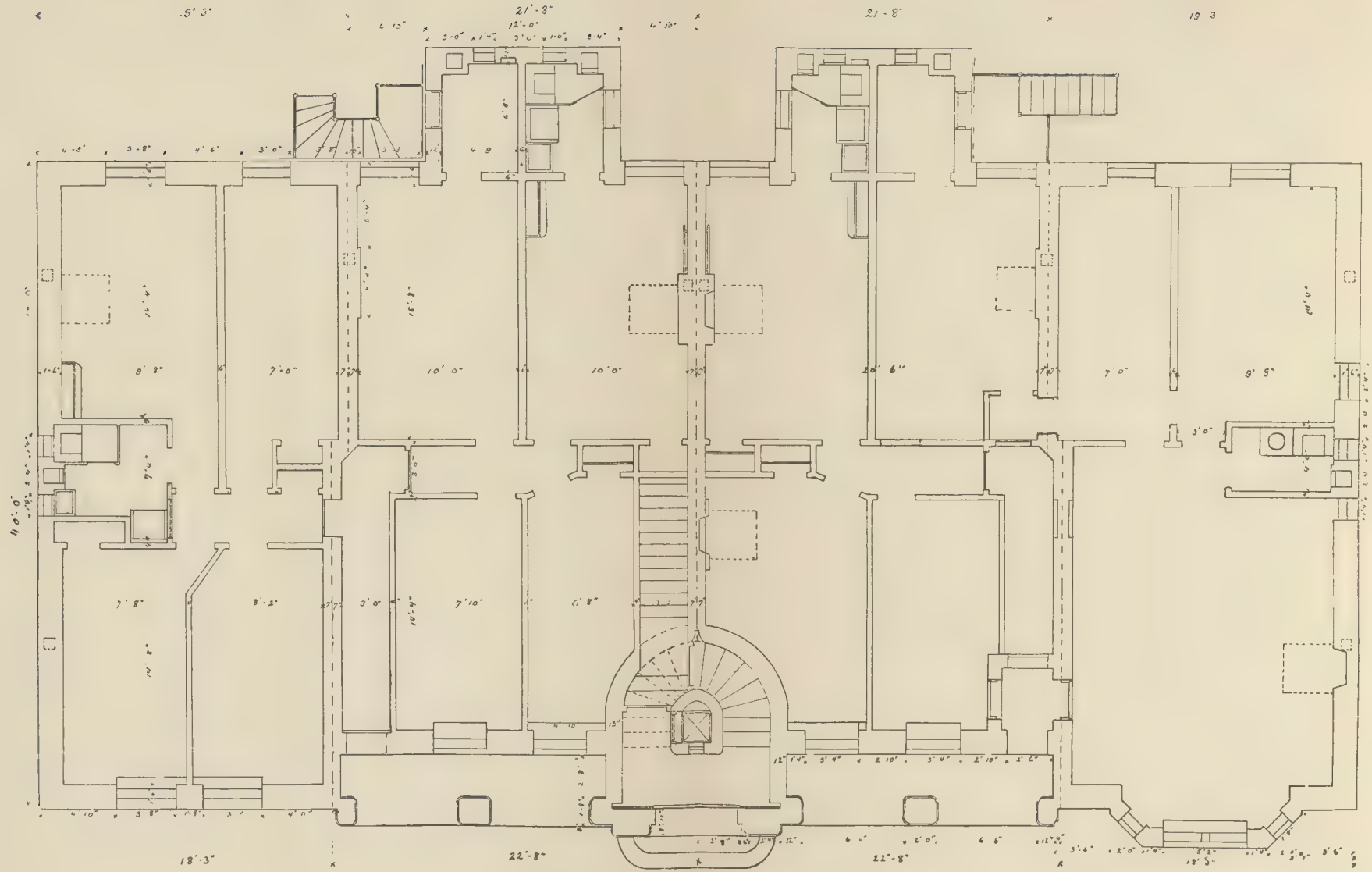
PLAN NO. 13 B.



First floor.

RIVERSIDE BUILDINGS, BROOKLYN, NEW YORK.

PLAN NO. 13 C.

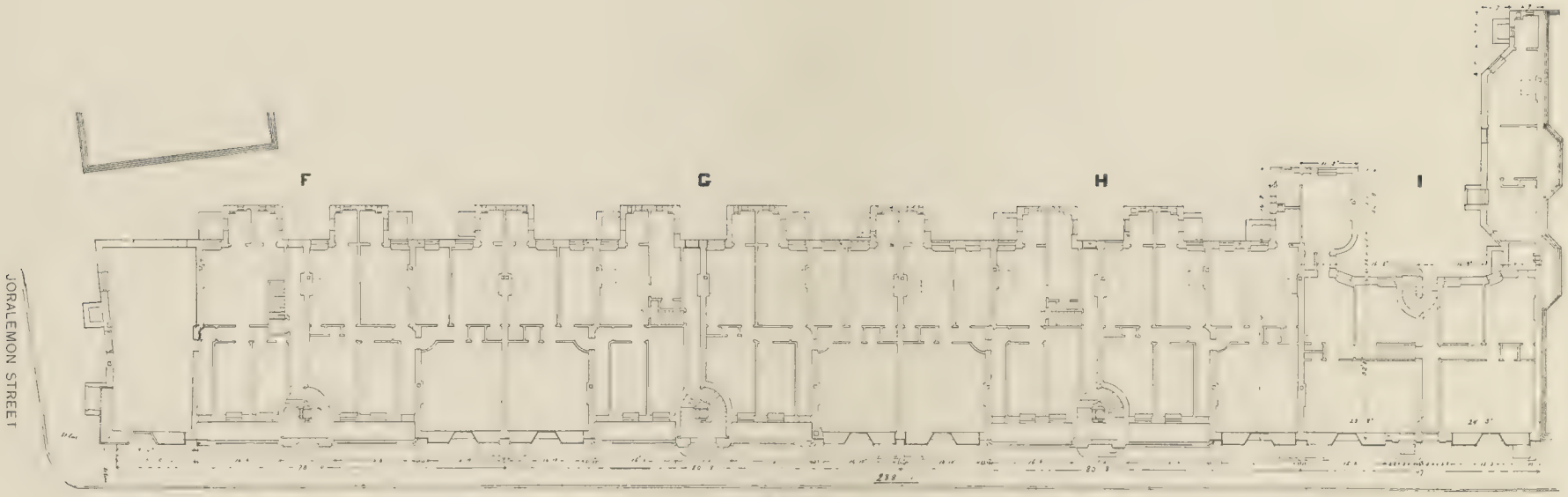


JORALEMON STREET.

First floor.

RIVERSIDE BUILDINGS, BROOKLYN, NEW YORK.

PLAN NO. 13 D.



First floor.

RIVERSIDE BUILDINGS, BROOKLYN, NEW YORK.

PLAN NO. 13 E.

gas. An unlimited quantity of water is allowed. Washing is done in the sculleries, where tubs are provided. Drying is done usually in the courtyard or on the roof, accordingly as the families live in the three lower or the three upper stories.

A cooking range is not furnished by the company, but there is a coal box in each kitchen which holds a quarter of a ton. This is generally used by tenants for fuel storage instead of the cellar space, as it affords the advantage of greater security and convenience, a fact resulting in the purchase of small quantities of coal at a time and at a higher price. There are dumb-waiters for raising fuel and provisions to the different stories. There are no garbage receptacles; all garbage must be burned. There is a closet with shelves in each kitchen which serves for a pantry. The ash shoots are 1 foot square and are ventilated from the roof. They discharge into large ash rooms in the rear of the cellars, the former being separated from the latter by brick walls. The ash rooms are accessible only by doors in the rear and are emptied twice a week. In warm weather the ash shoots are regularly disinfected. No ashes are ever exposed on the driveway or in the courtyard, being loaded directly from the vaults into the carts.

There are no fireplaces. Slate slabs are fixed in the floors for stoves, which are used for heating, to rest upon. There are no heating registers. Inside shutters are found throughout. Gas on the stairs, in the public hallways, bathrooms, and office is furnished by the proprietor, but the tenants, as a rule, burn oil in their rooms. Each apartment is furnished with a clothespress, having a shelf and hooks. There are no mirrors in the rooms, except the property of tenants. Kitchen, sitting room, and hall walls are painted; bedroom walls are calcimined. A space on the wall is painted in imitation of a brick fireplace. Walls on the staircases are of brick and painted. Much attention has been given to ornamentation, hence the exterior presents a very fine appearance. This is best shown in the accompanying cut (plan No. 13 A). The brickwork of the front walls, the balcony railings, and the arched ironwork above the balconies present a very pleasing appearance. Floor plans of the Riverside buildings are likewise shown (plans Nos. 13 B to 13 E).

In the construction of these model tenements four things were considered essential—first, privacy; second, health; third, safety; fourth, comfort. Domestic privacy seems to be regarded of greater importance in American life than elsewhere, and Mr. White's buildings have been constructed with the aim of providing as much as possible. Attention to these four elements furnishes the secret of success, and will almost guarantee continued occupation. The Riverside buildings contain 3 one-room tenements, 91 two-room tenements, 161 three-room tenements, and 23 four-room tenements. There are 2 single stores, 4 stores with 1 room attached, and 13 stores with 2 rooms attached. There are also 2 stores with 3 rooms and 1 store with 4 rooms. The

prevailing type of two-room tenements consists of a living room 16 feet by 10 feet and a bedroom 16 feet by 7 feet, exclusive of scullery and water-closet. The most general type of three-room tenements consists of a living room 16 feet by 10 feet, a bedroom of the same size, and a parlor 15 feet by 8 feet; or a living room 18 feet by 10 feet, a bedroom 16 feet by 8 feet, and a parlor 16 feet by 8 feet. In four-room tenements the living room is practically the same size, but the bedrooms and parlor are somewhat smaller. The ceilings of the first floor are 10 feet high, and in the succeeding stories 8 feet 3 inches high. Mr. White thinks that in America working people require more rooms than they do abroad; hence many families will crowd their bed and living rooms, if necessary, in order to have a parlor. The living room and kitchen are coextensive terms.

A single room and a scullery on the ground floor rent for $1.40 a week. Two-room tenements rent for $2 to $2.30 in the first story, $1.90 to $2.20 in the second story, $1.80 to $2.10 in the third story, $1.70 to $2 in the fourth story, $1.60 to $1.90 in the fifth story, and $1.50 to $1.80 in the sixth story per week. Three-room tenements rent for $2.60 to $2.90 on the first floor, $2.50 to $2.80 on the second floor, and thence to the top, diminishing 10 cents per floor. Four-room tenements rent for $3 to $3.60 in the first story, $2.70 to $3.30 in the second story, $2.60 to $3.20 in the third story, $2.50 to $3.10 in the fourth story, $2.40 to $3 in the fifth story, and $2.30 to $2.90 in the sixth story. An average store with two rooms rents for $25 per month. A rebate amounting to 10 cents per week for the year is paid each May to all tenants who have paid their rents promptly in advance during the preceding twelve months. This has a good effect in the prompt payment of rent. In May, 1893, an exception was made and all tenants received the rebate of 10 cents weekly, as an economic appetizer.

Two features of these tenement houses, which were borrowed from London practice, were very much criticised in the beginning and were deemed quite impracticable. One was the weekly payment of rent, and the other the outside staircase. In regard to the former, it has been found that weekly rents are paid more promptly, because the amount of each payment is not so large and the money is not missed so much. This is especially the case where wages are paid every seventh day. As regards the open staircase, no objection has been made by tenants. During the first week after the opening of the first building forty apartments were filled. The buildings are intended to accommodate the poorer paid working people, starting with those earning $1.25 per day.

The Riverside buildings were opened for occupation May, 1890. The original cost of the lot was $81,892.15; of the buildings, $264,163.14. The total sum received for rent from these buildings during the fiscal year 1893 was $33,866.43.

A classification of tenants, by place of birth and age, and number and average size of families, of the Riverside buildings exhibited the following results:

AGE OF TENANTS AND AVERAGE SIZE OF FAMILY IN THE RIVERSIDE BUILDINGS, BY PLACE OF BIRTH.

Birthplace of tenants.	Number of families.	Age of tenants.				Average size of family.
		Over 21 years.	5 to 21 years.	1 to 5 years.	Under 1 year.	
United States	81	176	67	41	16	3.7
England	12	25	18	4	1	4.0
Scotland	5	10	1	5	0	3.2
Ireland	69	154	70	32	9	3.8
Germany	19	51	14	12	4	4.3
France	2	6	1	2	0	4.5
Italy	2	4	0	1	0	2.5
Spain	1	2	0	0	0	2.0
Sweden	21	49	11	16	2	3.7
Norway	23	50	8	8	8	3.2
Denmark	12	25	9	6	4	3.7
Canada	6	14	3	2	0	3.2
Cape Town, South Africa	1	1	3	2	0	6.0
Total	254	567	205	131	44	3.7

The total number of families was 254 and the total number of individuals 947.

The occupations of heads of families in the Riverside buildings were as follows:

OCCUPATIONS OF HEADS OF FAMILIES IN THE RIVERSIDE BUILDINGS.

Occupation.	Number.	Occupation.	Number.	Occupation.	Number.
Dressmakers	6	Clerks	10	Oysterman	1
Grocers	2	Engineer	1	Gardener	1
Wire-worker	1	Engraver	1	Janitor	1
Laborers	42	Stenographer	1	Bookkeeper	1
Weighmaster	1	Porters	8	Compositors	3
Baker	1	Tailor	1	Merchants	2
Shipping clerk	1	Watchmen	5	Stonecutters	2
Waiters	3	Laundresses	3	Nurse	1
Housekeepers	20	Blacksmith	1	Molders	2
Boatmen	3	Varnisher	1	Screw maker	1
Music teachers	2	Drivers	6	Machinist	1
Street-car conductor	1	Upholsterer	1	Coopers	2
Elevator conductor	1	Glass cutters	2	Fisherman	1
Carpenters	16	Paper cutter	1	Lineman	1
Bartenders	3	Shirt maker	1	Steward	1
Shoemakers	3	Policeman	1	Cooks	2
Captains, vessels	2	Firemen	3	Tobacconist	1
Glass storekeeper	1	Silver burnisher	1	Sailors	2
Confectionery storekeeper	1	Furrier	1	Iceman	1
Milk storekeeper	1	Butchers	2	Pressman	1
Fancy goods storekeepers	3	Painters	4	Barbers	2
Restaurant keeper	1	Druggist	1	Awning maker	1
Bricklayer	1	Advertising agent	1	Chair maker	1
Longshoremen	30	Insurance agents	2	Paper-bag maker	1
Missionary	1	General agent	1	Bookbinder	1
Printers	3	Seamstress	1	Total	254
Lightermen	6	Boiler maker	1		
		Millwright	1		
		Lawyer	1		

The nationalities of heads of families in the Tower buildings, the second group of buildings opened by the Improved Dwellings Company, were as follows:

NATIONALITY OF HEADS OF FAMILIES IN THE TOWER BUILDINGS.

Nationality.	Number.	Nationality.	Number.
Americans	23	Irish	23
Austrian	1	Norwegians	37
Belgian	1	Scotch	1
Canadians	2	Swedes	26
Danes	7		
English	3	Total	132
Germans	8		

The occupations of heads of families in these same buildings were as follows:

OCCUPATIONS OF HEADS OF FAMILIES IN THE TOWER BUILDINGS.

Occupation.	Number.	Occupation.	Number.	Occupation.	Number.
Police officers	3	Lightermen	4	Courier	1
Private watchmen	2	Blacksmiths	2	Janitors	2
Laborers	11	Inventor	1	Cooper	1
Photo-engraver	1	Plumber	1	Peddler	1
Clerks	10	Cook	1	Ship chandler	1
Barber	1	Stevedore	1	Car conductor	1
Longshoremen	4	Marble-cutter	1	Bricklayer	1
Carpenters	16	Elevator man	1	Silver plater	1
Rigger	1	Dock builders	2	Mason	1
Porters	6	Salesman	1	Fireman	1
Tailors	6	Truckman	1	Brass worker	1
Bookkeepers	2	Engineers	3	Housekeepers	2
Boatman	1	Painters	2	Laundresses	5
Machinist	1	Milkman	1	Dressmakers and seamstresses	7
Boat captain	1	Manager	1	Charwoman	1
Tinsmith	1	Brass roller	1	No occupation	3
Waiters	2	Gas fitter	1		
Grocer	1	Oil merchant	1	Total	132
Umbrella maker	1	Printer	1		
Ship steward	1	Caterer	1		
Carver	1	Compositor	1		

Three distinct groups of buildings are owned by the Improved Dwellings Company of Brooklyn. They are all situated not far from the river bank and are extremely convenient of access from the ferries and numerous street car lines centering in the neighborhood. These buildings are known respectively as the "Home buildings," "Tower buildings," and "Riverside buildings." The Home buildings were opened for habitation in February, 1877; the first section of the Tower buildings was opened in June, 1878; the Riverside buildings received tenants for the first time in May, 1890. In all these different blocks there are 4 one-room tenements, 135 two-room tenements, 308 three-room tenements, 48 four-room tenements, 1 five-room tenement, 23 stores with dwellings, and 13 stores without dwellings.

The work of this company is due entirely to private enterprise. One can scarcely call it a public concern, since members of Mr. White's family only are interested. There is no capital stock. The older buildings pay 10 per cent on the money invested; the latest, the Riverside,

pays only from 5 to 6 per cent. The cost of building has greatly increased since the enterprise was started. It had augmented by about 40 per cent in 1890, when the Riverside buildings were constructed. This increased cost has been due mainly to the enhanced price of labor. The value of slate is about the same, but iron and woodwork has slightly increased; for brick and masonry there has been a considerable advance, while plastering costs 100 per cent more. The wages paid to bricklayers in 1878 was about $2.50 per day of ten hours; twelve years later they were paid $4 per day of eight hours.

One and one half per cent of the cost of the buildings is set aside as a repair fund during each fiscal year. The company is very liberal in making repairs, and finds that it pays to be so.

The general taxes in 1893 amounted to $10,403.39; the water tax to $2,094.67. The total estimated value of lands and buildings belonging to the company is now $672,788.69. The gross rental during the last fiscal year was $64,731.14. There was very little loss of rent from unoccupied tenements, as they were rarely empty longer than it took to put them in order to receive new occupants. Rents are paid weekly in advance, on Saturday or Monday, at the offices of resident agents. Tenants rarely give notice of intention to quit, moving out whenever it suits their convenience to do so. Arrearages of rent from three days to one week are allowed. In the older groups of buildings rents have varied but little. When the Riverside buildings were completed a higher rent was charged, but it was soon found that that class of people could not go beyond the limit paid in the other houses, and it was therefore reduced to the same rate as in the older blocks. The rentals are about the same as those exacted in other houses of the vicinity for an equal amount of floor space. The advantages are not in the rental, but in superior accommodations. The average duration of tenancy was greater formerly than it has been since the introduction of rapid transit. Then only such people as coachmen and servants left during the summer time, but now all classes seem to adopt the custom of going to the suburbs for the summer. The outward movement commences in June, and the people remain until the cold weather of approaching winter drives them back. This movement is greater in the Riverside buildings than in the older blocks. Changes of employment and deaths also cause removals. Tenants do not often remain longer than three years.

Tenants are not permitted by the regulations to sublet any part of their lodgings, but they often do so, claiming that the boarders are relatives and as such have a right to remain in the family.

The only form of application required of a prospective tenant is that he shall sign an agreement to follow the prescribed regulations. There is no lease or formal contract. The apartment is let under the following conditions:

All rents payable weekly in advance, on Saturday or Monday, at the office during office hours.

Tenants not paying in advance will be notified to leave at once.

No tenant is permitted to underlet any portion of his apartments, or to take in lodgers.

Tenants are required to give immediate notice to the agent of any need of repairs, and to pay for such as may be due to their own carelessness.

No nails to be driven in walls or woodwork without agent's consent.

In winter wash rooms to be kept warm to prevent freezing of pipes.

Halls and balconies to be cleaned daily by the tenants using them.

Tenants are strictly prohibited from throwing anything out of the windows, and from obstructing the waste pipes or ash flues.

Only ashes to be thrown into ash flues.

All garbage must be burned.

No clothes to be hung out of windows.

No animals to be kept on the premises.

Carpets to be shaken only in the yard.

Clothes to be removed from lines so soon as dry. Lines not to be used on Sunday.

Plants must be watered only in the rooms.

Before washing windows notify tenants below.

Children not allowed on the roof, nor to play on stairs or balconies.

Chopping or sawing wood not allowed in the apartments or on the roof.

Disorderly tenants will be expelled at once.

The agent is required to enforce all these regulations, and will be immediately discharged if he neglects to do so.

Bath tickets may be had from the agent.

The complete management of the buildings is in the hands of resident agents, who are intelligent and capable men and receive good salaries.

The duties of the agents are to collect rents, employ help, look after minor improvements and repairs, select tenants, etc.

One woman is employed for each staircase at a compensation of $1 per week. She washes the staircase once every day before 9 a. m. There are two watchmen employed—one to light the staircase and keep order, receiving $12 per week; the other, a special police officer, on duty from 7 p. m. to 2 a. m., receiving $7 per week.

As regards situation of buildings in reference to the places of employment of tenants, it may be said that the longshoremen and those working in kindred occupations (who constitute a considerable portion of the tenantry) work from one-half to one mile from the buildings. The others are so located that information for individual cases can not be given. Some work in New York and reach their destination by ferry and street railway, or ferry only, while others are employed in Brooklyn, either riding or walking to the appropriate locality. The ferry costs 4 or 6 cents, and the street car 10 cents for a round trip. Those going to New York, however, have no occasion to take the street car on the Brooklyn side.

A reading room, open from 7 to 10 p. m., has been placed in the Home buildings. It is situated on the ground floor and is intended for the use of the tenants of the Home and Tower groups, as well as the inhab-

itants of the cottages in Warren place. A large table occupies the center, containing files of seven daily papers, three weekly illustrated papers, and three monthly magazines. The bookcases contain 334 plainly bound novels, which may be taken away for a week at a time. Periodicals may not be removed from the room unless they are old. Only tenants are admitted, and these must be provided with library tickets, which are issued free by the agent. The name and room number of the occupant is stated upon the ticket.

Adjoining the reading room and library are six bathrooms, also for the free use of tenants. These are provided with hot and cold water. Tickets must be obtained in every case when a bath is desired. They are issued by the agents to tenants only, and the number of tickets is not limited. Bathrooms are open for women and children Tuesdays from 3 to 6 p. m. and Saturdays from 2 to 6 p. m.; for boys, Saturdays from 9 a. m. to noon, and from May 1 to October 1, Wednesdays from 3 to 6 p. m., in addition; for men, Saturdays from 7.30 to 10 p. m., Sundays from 8 a. m. to noon, and from May 1 to October 1, Wednesdays from 7.30 to 10 p. m. The boiler heating the water for the baths is placed in such a position that it heats the reading room and bathrooms as well. A woman is employed at a weekly compensation of $2 and free apartments ($2.10 per week additional) to manage and clean the baths and reading room. About $9 per month is expended for newspapers.

Statistics of the patronage of reading room for the period from December 3, 1892, to July 1, 1893, with the exception of the month of March, 1893, appear in the following table:

ATTENDANCE AT READING ROOM OF IMPROVED DWELLINGS COMPANY.

Week beginning—	Men.	Women.	Boys.	Girls.	Total.
December 3, 1892	83	5	10	2	100
December 10, 1892	92	3	6	1	102
December 17, 1892	82	4	4		90
December 25, 1892	82	3	4		89
January 1, 1893	84	4	7		95
January 8, 1893	78	4	9		91
January 15, 1893	77	4	9		90
January 22, 1893	81	7	12		100
January 29, 1893	72	6	9		87
February 5, 1893	72	9	9		90
February 12, 1893	73	13	6		92
February 19, 1893	84	12	4		100
February 26, 1893	84	7	15		106
April 2, 1893	80	10	15		105
April 9, 1893	75	10	17		102
April 16, 1893	83	7	14		104
April 23, 1893	72	8	12		92
April 30, 1893	73	9	9	1	92
May 7, 1893	76	9	14		99
May 14, 1893	81	8	14		103
May 21, 1893	73	6	17	1	97
May 28, 1893	68	6	13		87
June 4, 1893	61	5	11	1	78
June 11, 1893	59	6	9		74
June 18, 1893	48	6	15		69
June 25, 1893	48		15		63
Total	1,941	171	279	6	2,397

A record of those taking baths at the Home buildings during the first six months of 1893 has been kept. For the women, boys, and girls a separation of the different nationalities has been attempted. This differentiation includes three principal heads, namely, Irish, Scandinavian, and other nationalities. The figures appear in the following table:

RECORD OF BATHS TAKEN AT THE HOME BUILDINGS.

Month.	Men.	Women.				Boys.				Girls.			
		Irish.	Scandinavian.	Other nationalities.	Total.	Irish.	Scandinavian.	Other nationalities.	Total.	Irish.	Scandinavian.	Other nationalities.	Total.
January	7										1		1
February	6							1	1				
March	16		3		3	1	1	2	4		3		3
April	19		9		9	1	1	2	4	15	3	4	22
May	34		9		9	8	17	1	26	34	32	4	70
June	58	1	12	5	18	9	17	4	30	43	51	3	97

At the Riverside buildings baths are provided and similar regulations prevail. The record of baths taken at the Riverside buildings is as follows:

RECORD OF BATHS TAKEN AT THE RIVERSIDE BUILDINGS.

Month.	Year.			
	1890.	1891.	1892.	1893.
January		56	6	15
February		54	26	33
March		53	37	48
April		96	181	189
May	303	342	210	193
June	397	398	454	424
July	489	322	662	448
August	497	407	454	420
September	239	206	249	241
October	93	149	184	192
November	131	67	49	50
December	51	56	92	78
Total	2,200	2,206	2,601	2,331

It is only fair to say that the bathrooms at the Riverside buildings have but recently been opened, and consequently the figures should hardly be taken as indicative of the habits of cleanliness among tenants.

It is not the purpose of this inquiry to meritoriously distinguish specific model enterprises. Facts are allowed to speak for themselves, and on this basis of judgment full justice will be accorded to the Brooklyn Improved Dwellings Company.

ASTRAL APARTMENTS, BROOKLYN, NEW YORK.

These buildings are owned by the Pratt Institute and are situated on Franklin, India, and Java streets, Greenpoint, Brooklyn. The complete frontage on the three streets is 410 feet and the depth 100 feet. About 62 per cent of the ground has been built upon; the rest is open space in the form of a courtyard paved with asphalt. No part of the

court is covered to serve as a recreation ground in rainy weather. Children are allowed to play there except on Sundays. Drying clothes is also permitted. The buildings have six stories with a basement, and are 85 feet high. They are constructed of brick, with stone trimmings. Special care has been taken to insure solidity, and safety in case of fire. The front walls are 2 feet thick and the other walls 1 foot 8 inches and 2 feet. The roofing is of slate, and the stairways of bluestone slabs inserted in brick walls and provided with iron railings. Each staircase extends to the roof and is protected by a cupola with a tile roof, in which is a large ventilator. The dumb-waiter shafts are solid mason work and go above the roof, thus removing perhaps the most frequent cause of fire in apartment houses. Five brick party walls separate the block into six distinct sections. Foundation walls rest on a dry gravel bottom and are coated with asphalt, besides having a bitumen damp course inserted throughout just above the footings. The cellar is paved with asphalt and is used for storage purposes, each tenant having a separate bin. In addition to stores the ground floor contains a lecture room, kindergarten, bathrooms, library and reading rooms, and storage apartments.

Staircases are provided with low, broad steps. All turns are made at square platforms, and there are windows on every landing. From two to four families on each floor use the same staircase. Loitering on landings or in hallways is not permitted As the tenements are fully self-contained, there is no occasion to use the hallway except as a means of ingress or egress. Apartments are so arranged that every room communicates directly, either by doors or windows, with the open air. All doors have transoms, and there are numerous sashes in the partitions to furnish additional light and ventilation. There is not an airshaft in the whole block.

A water-closet is provided for the sole use of each family and is within the buildings. The chain flush system is used. As regards plumbing, the heaviest materials, both in lead and iron pipes, have been used throughout. As the city pressure supplies water to only three stories, eleven tanks, holding about 15,000 gallons, are placed on the roof to supply the three upper floors. The piping has been so arranged that if the city pressure should at any time fall off the third floor could also be supplied from the tanks. A pump in the cellar raises the water. The fixtures and lines of pipes have been kept in groups adjoining the chimney stacks, so that the horizontal branches are very short, and there is little danger of freezing. Water tanks are cleansed once a year. No restriction is imposed as to the quantity of water which may be used. Steam pipes run through the cellars to heat the bath and other basement rooms. Tenants supply the heat to their own apartments. Gas is placed in the hallways and in the four and six room tenements; oil is used for lighting purposes in all the others. Kitchens are provided with ranges and boilers. There are also pan-

tries, and clothespresses are found in every room. There are washtrays and sinks in the sculleries. Hot and cold water appliances exist in all the tenements. Marble mantles and fireplaces are in all four-room tenements. In smaller ones the room adjoining the kitchen has a flue. All windows have shades inside. Front windows are provided with Venetian blinds. Kitchens have tables on hinges so that when not needed for use the space may be made available by letting them down. There are dumb-waiters, and electric bells are provided for every tenement. Halls and cellars are lighted by gas from sunset to sunrise. The walls of all rooms are painted. Halls, passages, and living rooms are wainscoted and trimmed with select Virginia pine, but bedrooms and parlors are finished in whitewood, left its natural color, but varnished and rubbed. At least $500 annually is spent for interior decorations. An idea of the external decorations and the general distribution of the tenements can best be obtained from the accompanying cut and second floor plan of the buildings (plans Nos. 14 A and 14 B).

Every tenement has its own scullery, varying in size from 3 feet to 9 feet in length by 6 feet in width, a separate water-closet, washtub, ash flue, coal box, sink, boiler, range, hinged table, and clothespress. The habitation of the family is not only completely self-contained, but the maximum number of conveniences is provided.

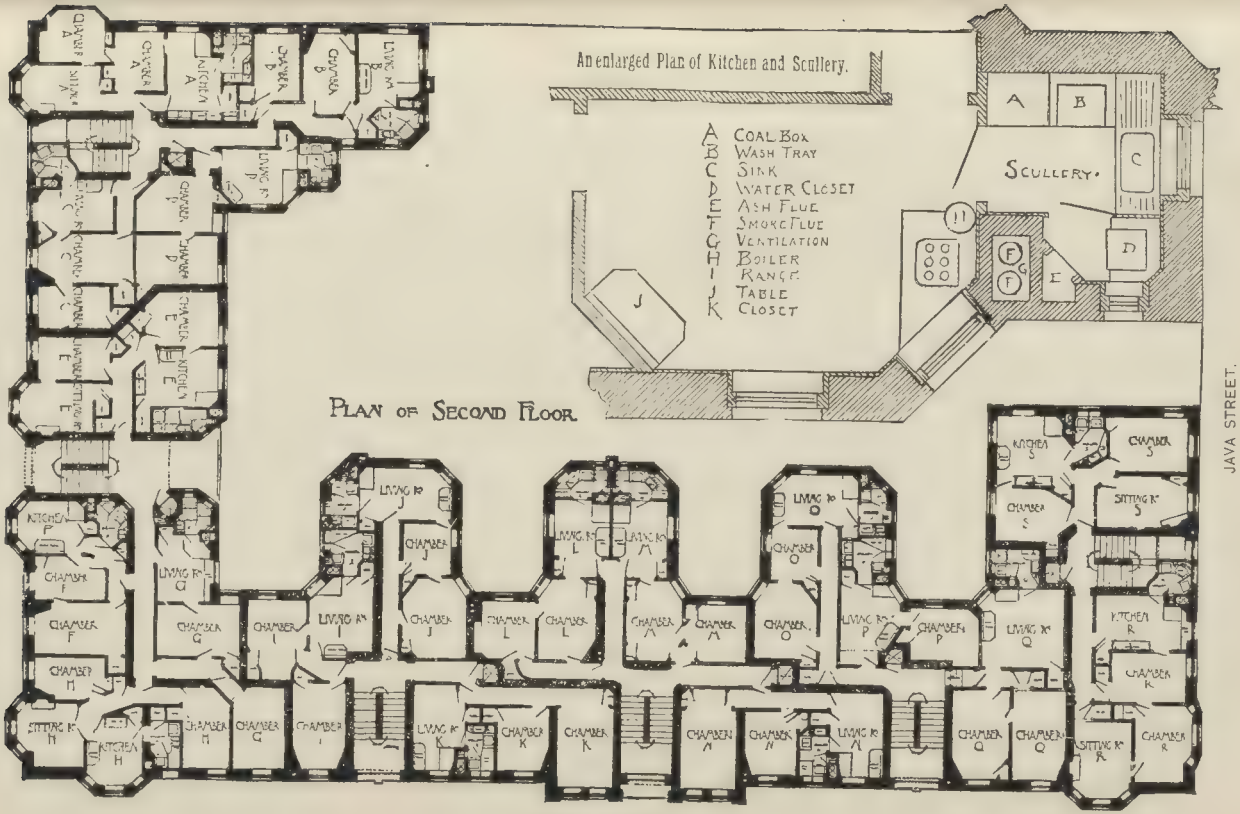
The buildings contain, besides the stores, kindergarten, library and reading room, lecture room, bathrooms, and storage rooms already referred to, 6 two-room, 74 three-room, 25 four-room, and 3 six-room tenements, in all 108 separate dwellings. The office, carpenter shop, etc., take up three of these, so that 105 only are for rent. The average size of kitchens in two-room tenements is 10 feet 2 inches by 12 feet; in three-room tenements, 10 feet 8 inches by 13 feet; in four-room tenements, 11 feet by 13 feet 8 inches; in six-room tenements, 11 feet by 9 feet. Bedrooms vary in size from 8 feet by 10 feet as the smallest to 9 feet 6 inches by 15 feet 4 inches as the largest. The height of the ceilings is 8 feet 8 inches throughout. The average cubic contents of air space within two room tenements is about 1,941 feet, of three-room tenements 3,143 feet, of four-room tenements 4,593 feet, and six-room tenements 6,509 feet.

As already mentioned, the buildings contain certain useful adjuncts. There are five bathrooms, with floors and partitions of marble and heavy tubs of enameled iron. Hot and cold water, as well as steam heat, is provided in them. Bathing is free and very much resorted to, in the summer time almost constantly. A reading room and free circulating library, which is a branch of the Pratt Institute of Brooklyn, occupies the corner store space on Franklin and Java streets. The average attendance is about 125 and the distribution of books 80 daily. Six daily papers, 32 periodicals and magazines, and 3,000 volumes constitute the equipment. The library is open from 2 to 9 p. m. A kindergarten was opened on January 1, 1894. It occupies a large room, about



ASTRAL APARTMENTS, BROOKLYN, NEW YORK

PLAN NO. 14 A.



ASTRAL APARTMENTS, BROOKLYN, NEW YORK.

PLAN NO. 14 B.

42 feet square, with toilet annex properly heated. Outsiders as well as children of tenants receive instruction.

The average number of tenements occupied during the last fiscal year (1893) was 74, accommodating 325 persons. This number represents the smallest rent roll since the enterprise was begun. Usually from 75 to 95 tenements are occupied at one time. The buildings have an excellent sanitary record. There have been no epidemics of any kind, and in six years but eight deaths have occurred. Three of the deceased were under five years of age. The record of births during the six years is thirty, all of which were legitimate.

The rentals for two-room tenements are $8 per month on the first story, $7.50 on the second story, and $7 on the four upper stories. Three-room tenements on the first story vary in rental from $10 to $12 per month, on the second story from $11 to $12, on the third story from $10.50 to $11.50, on the fourth story from $10 to $11, on the fifth story from $9.50 to $11, and on the sixth story from $9.50 to $10.50. Four-room tenements on the first story rent for $14 per month, on the second story $14 to $16, on the third story $13 to $15, on the fourth story $14 to $14.50, on the fifth story $12 to $14, and on the sixth story $11.50 to $14. Six-room apartments are found only on the first three stories, and they rent for $16, $17, and $18, according to location, per month. There was received for rent during the fiscal year 1893 $10,090.50. About $50 was lost through nonpayment of rentals. Rents are paid monthly in advance at the office of the resident agent in the building. A discount of 10 per cent is allowed to all who have paid promptly in advance during one year. Tenants are requested to give ten days' notice of intention to leave, but rarely do so. None have been ejected. Rent charges have not advanced or declined since the opening of the building.

The occupations and weekly earnings of 66 of the tenants inhabiting the buildings when the inquiry was made were as follows:

OCCUPATIONS AND WEEKLY EARNINGS OF TENANTS OF THE ASTRAL APARTMENTS.

Number.	Occupation.	Average weekly earnings.	Number.	Occupation.	Average weekly earnings.
1	Agent, insurance	$12.00	1	Flower maker	$12.00
2	Boiler makers	15.00	4	Glass blowers	12.00
2	Bookkeepers	14.00	1	Grocer	
1	Butcher	14.00	1	Lead burner	20.00
7	Carpenters	15.00	14	Machinists	15.00
1	Civil engineer	30.00	1	Newspaper reporter	25.00
10	Clerks	12.00	2	Painters	15.00
3	Conductors	14.00	1	Plumber's assistant	18.00
3	Dressmakers	9.00	1	Retired fireman	a 50.00
1	Electrician	18.00	1	Silversmith	15.00
4	Engineers	$18.00 to 20.00	1	Stonecutter	18.00
1	Expressman	14.00	1	Watchman	12.00
1	Fireman	14.00			

a Per month.

It is calculated that about 15 per cent of the breadwinner's earnings, as a rule, are paid for rent in these tenements. This average is certainly lower than for fair accommodation in the neighborhood. No other equally good exists. In 60 per cent of the cases the duration of tenancy has been two years or more, 20 per cent between one and two years, and 20 per cent one year or under. Tenants are not permitted to sublet any part of their tenements. No form of application is required from a prospective tenant, nor are leases or contracts signed.

Twelve of the heads of tenant families live less than one-half mile from their regular places of employment, 29 between one-half and one mile, the cost of the round trip to them being 6 cents, and 33 work in places more than one mile distant and are obliged to pay 5 cents for the street-car fare each way.

A resident agent is in charge. He has two men as assistants, who are occupied in making repairs, keeping things in order, and doing general work, and one woman who does scrubbing.

The Astral Apartments were opened for occupation in 1887. The original cost of the lot was $23,000 and of the buildings $260,000. The money is not represented by share capital, but came from an endowment fund intended to support the Pratt Institute. No reserve has been set aside nor has any dividend been provided. The annual rate of net earnings has been about 2 per cent.

Notwithstanding the comparatively low rentals, and the excellence of the accommodation afforded, the buildings are not as popular as they should be for residential purposes. Their solidity of structure is often quoted as an objection by would-be tenants, who affect to see in the splendid and substantial looking façade a barracks-like appearance. They frequently say that the buildings appear to them to be too much like an institution. It is hoped that in time these objections will be surmounted. The large percentage of tenants who have occupied apartments two years or over gives promise that, once the buildings are filled up, more will remain permanently. If this should happen the financial returns will be more satisfactory than they are to-day.

IMPROVED DWELLINGS ASSOCIATION, NEW YORK CITY.

The model tenement buildings belonging to this company are located on Seventy-first and Seventy-second streets and First avenue. The frontage of the lot on the avenue is 200 feet, and 140 feet on Seventy-first and Seventy-second streets, respectively. The total superficial area of the lot is 40,000 square feet, of which 24,080 square feet have been built upon. The open space is in the form of a courtyard. It is designed entirely for the free use of occupants. Children play in covered passageways, or in their homes, in rainy weather. They are not allowed to congregate on the stairs or in the hallways. In fair weather the open space is used for playgrounds and for drying clothes.

The buildings have six stories and are 65 feet in height. They are built of brick and the exterior walls are 2½ feet thick. Each house is separated from the other by a brick party wall. The roofing material is of asphalt, and the staircases are constructed of slate and stone. Special arrangements have been made in the construction to render the buildings as nearly fireproof as possible. The houses are solidly built, and the stairways and landings have nothing inflammable in their composition. Fire escapes are found in the rear, but these are only to a small extent a necessity. There are cellars, which are paved with asphalt. They are divided by brick walls and wood partitions into compartments, each tenement having a separate one for storing coal and wood. The buildings have no basement.

In the "dumb-bell" shaped houses the staircases and lifts, together with the water-closets, are in that portion which connects the front and rear tenements. The staircases are in the center, with the two water-closets on one side and the two lifts on the other. Four windows open to the court, two on each side, and these give light and through ventilation to the stairways, corridor, and closets, and prevent odors from getting into the apartments. With the exception of the ground floors, and in the two corner houses the upper floors, each room opens directly upon the staircase and hallway. No special arrangements exist to prevent the promiscuous mingling of occupants upon stairways and landings; but it should be noticed that in no case do more than four families on each floor use the same staircase. Each tenement on the upper floors of the "dumb-bell" houses has a private corridor for the sole use of its occupants. This connects with the staircase. In the other houses there is no corridor except that which is taken up by the stairway and landing. Every room connects directly, either by doors or windows, with the open air. Each tenement has free ventilation from front to rear by windows and transoms.

The houses are not self-contained. In the "dumb-bell" houses each water-closet is used by two tenants. In the others each tenant has a separate water closet. The average number of persons using a water-closet may be set down at eight in one case and four in the other. The system in use is the chain and hopper, with a good, strong flush of water. The waste water is carried down under the back building to two flush tanks, thence to the sewers. All escape pipes are run down the ash shoots, and thence under ground to the sewers. There is no surface drainage anywhere. In the houses having no rear tenements the water-closets, washtubs, and sinks are in sculleries in a rear extension, and are reached from the living room or kitchen, the sink being nearest the living room, then the tub, and then the water-closet. Two doors intervene between the living room and the water-closet. The sculleries are lighted by two windows, one on the side and the other at the rear, both opening to the court. The living rooms in the "dumb-bell" houses are the front rooms of the front three-room tenements and

the larger rooms of the rear two-room tenements. This arrangement leaves the bedrooms toward the staircase too small for placing ordinary beds, especially when one corner of each room is cut off. The "dumb-bell" houses have two lifts each; the other houses have one each. These are for fuel and supplies only. The quantity of water allowed per tenement is unlimited. Each house of the "dumb-bell" pattern has a furnace in the basement. This, by means of a register, heats the large hall on the ground floor. The smoke pipe of this furnace passes through the ash shoot and up alongside of it, heating it sufficiently to prevent the water pipes from freezing in the winter. The furnace also furnishes steam heat for use in the laundries. Tenants heat their own apartments. As a rule the tenants use oil lamps for lighting purposes. The halls and staircases are lighted with gas every night from dusk until 10.30 p. m. on Saturdays and Sundays, and until 10 p. m. on other days.

Drying clothes is done in the court by people living on the lower floors, and on the roof by those living on the upper floors. For this purpose iron supports are placed in the yard and on the roof. Hanging clothes out of the windows is not permitted; neither is it allowed on balconies nor on fire escapes. Washing is not done within the dwelling, but in laundries which are provided for the free use of tenants.

Sinks in the living rooms of the "dumb-bell" houses are inclosed in a closet of wood, which, when closed, looks like a clothespress. There are three shelves over the sink in each of these closets. Enameled iron is the material used in the construction of the sinks.

The cooking range is furnished by the tenants. The fuel storage compartment, which has already been referred to as existing in the cellar, has a capacity for about two tons of coal and a small supply of wood.

The janitor empties the ash chambers daily by carrying the ashes in barrels to the street, where they are carted away.

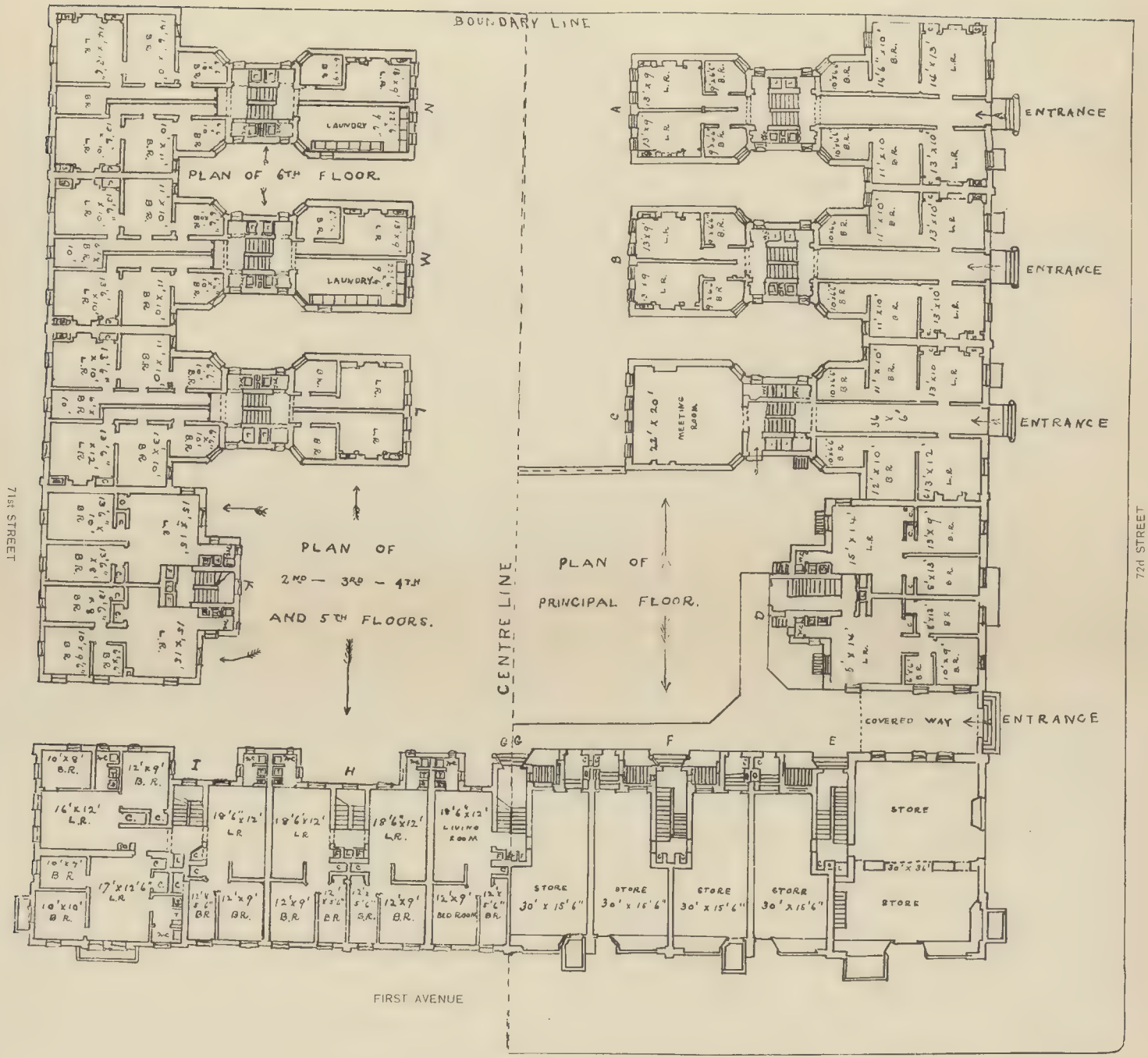
Each living room has a ventilated compartment used as a pantry and for similar purposes. Few clothespresses are found; none exist in the "dumb-bell" houses; in the others sometimes there is one, and occasionally two, to each tenement. A fireplace is found in one room of each of the three-room and four-room tenements. Heating registers are found only in the main corridor on the first floor. There are no window shutters, but shades have been put at all of the front windows. Front balconies are placed on alternate stories of each corner house; also similarly for the four-room tenements.

As regards internal decorations, the living rooms have been painted and the bedrooms calcimined. The main halls on the ground floor have painted walls, and the floors are covered with linoleum. The external decorations will best appear from the accompanying cut of the buildings (plan No. 15 A). A plan of the various floors is also given (plan No. 15 B).



BLOCK BUILDING OF THE IMPROVED DWELLINGS ASSOCIATION, NEW YORK CITY.

PLAN NO. 15 A.



BLOCK BUILDING OF THE IMPROVED DWELLINGS ASSOCIATION, NEW YORK CITY.

PLAN NO. 15 B.

From the plan all internal arrangements are easily discerned. The dimensions of each room are also approximately given. The buildings contain 64 two-room, 114 three-room, and 42 four-room tenements. There are also 10 stores, 6 laundries, 1 meeting room, and a large bath-room, 22 feet by 20 feet. The height of ceilings is 11 feet, 8 feet 9 inches, and 8 feet 3 inches in the different stories. The amount of cubic air space in the typical two-room tenement is about 1,550 feet. The greater number of the three room tenements have a cubic air measurement of 3,267 feet; a few contain over 4,000 feet. Three thousand feet is the smallest cubic measurement of a four-room tenement and 4,800 the largest.

Two-room tenements in the first story rent for $6.75 and $7 per month; in the second story, from $7.25 to $7.75; in the third story, from $7 to $7.50; in the fourth story, from $6.75 to $7; in the fifth story, from $6.50 to $6.75; in the sixth story, from $6.25 to $6.50. The rental for three-room tenements varies from $11 to $15 in the first story, from $11 to $13.50 in the second story, from $10.50 to $13 in the third story, and thence diminishing by 50 cents per story until the sixth, where $9 and $11.50 represent the minimum and maximum figures. The rental of four-room tenements in the first story is $11; in the second story, from $12.50 to $14; in the third story, from $12 to $13.50; in the fourth story, from $11.50 to $13; in the fifth story, from $11 to $12.50; in the sixth story, from $10.50 to $12. The total sum received for rent during the last fiscal year was $22,602.96.

In May, 1893, when these buildings were visited, 210 families were being accommodated. No epidemics have taken place in the buildings since their occupation; neither have any criminal convictions occurred among the inhabitants. The exact record of births and deaths has not been kept.

This is the only block of tenements owned by the company. The original cost of the land was $45,000 and of the buildings $225,000. The total amount of present share capital is $285,000. No money has been borrowed. Five per cent dividend has been paid annually since the foundation of the company, and a reserve of $32,147 has been set aside. The dividend and reserve together represent net earnings of 6 per cent. Besides this, $12,500 have been taken from the earnings and spent in improvements. The present estimated value of the property is $300,000. In round numbers, $1,250 represents the loss of rental resulting from unoccupied lodgings during the last fiscal year. Separate apartments are not sold to individuals inhabiting them.

Payments of rent are required monthly in advance, but laxity is permitted in cases of good rent payers. Weekly installments usually liquidate the charge in these instances. The weekly system was formerly employed in the smaller tenements, but was found to cause complications. The tenant is required to give five days' notice of his intention to quit, but this regulation is never enforced. A tenant in arrears

who has no good reason for not paying his rent usually finds steps taken for his ejectment after three days' notice. One and one-half per cent represents the loss through nonpayment of arrears during the last fiscal year.

But one change has been made in rentals since the enterprise was founded. When regular real estate agents were placed in charge all rents were reduced. Originally they were unquestionably put at too high a figure. The rentals charged for apartments in these model tenement buildings are 25 per cent less, considering the superior advantages, than those asked for accommodations in the neighborhood. Rents are paid at the office of the resident agent.

No statistics have ever been prepared as to the occupations and earnings of heads of tenant families. At the present time about 40 per cent are estimated to be Germans, and the rest are mainly Bohemians, English, and Americans. A fair proportion of the tenants belong to the mechanical class, and they command good wages—some earning as high as $5 a day; probably 50 per cent earn $3 per day. Ten per cent are clerks, and the remainder, drivers and day laborers, earn about $2 per day.

The agent selects tenants from among applicants in a general way. He does not ask for recommendations, since these, experience shows him, are often given by landlords who wish to get rid of doubtful tenants; and he does not investigate, because of the delay which might result in the loss of desirable occupants. "Sizing up," as he himself expresses it, is the method in which he has most confidence. No lease or contract is made. When tenants rent apartments they are supposed to sign an agreement to observe the following regulations, which formality, however, is rarely complied with:

It is distinctly understood that the renting is for one month only.

All rents are payable monthly in advance, at the office of the association. This regulation will be most strictly enforced.

Disorderly tenants will be immediately dispossessed.

Tenants will be held responsible for all preventable damage to the apartments they occupy.

In cold weather care must be taken to prevent freezing of the water pipes.

The association does not hold itself responsible for water damage.

All garbage must be burned. Throwing paper, vegetables, or other refuse, oyster shells, etc., down the ash shoots is strictly forbidden. Nothing whatever may be thrown into the water closets.

Tenants are required to take weekly turns cleaning closet, flight of stairs, and hallway leading to their apartment, which must be swept every day and scrubbed once each week.

Clothes may only be dried in the yard or on the roof.

Carpets may only be shaken or beaten in the yards at convenient times, to be determined by the agent.

Plants must not be watered outside the windows.

The window shades must be kept in repair by the tenants.

No tenant will be allowed to sublet any portion of the apartment or take a boarder without the permission of the association.

No animals will be allowed in the apartments or about the premises.

In case of contagious or infectious sickness, notice of the same must be given to the agent as quickly as possible.

In case of fire, notice must be instantly given to the agent or janitor.

An agent in residence has general charge of the buildings. He collects the rents at his office, recommends repairs, and selects tenants. His force of assistants comprises a janitor, at $60 per month, who keeps order about the place, carries out the ashes, and cleans up a portion of the court; a night watchman, at $40 per month, who patrols all the cellars and staircases once every hour during the night and cleans up a portion of the court; an engineer, at $80 per month, who looks after the boiler, etc., and does all the plumbing; four women, at wages varying from $8 to $30 per month, according to the amount of work required of them. These are known technically as housekeepers, some having several houses to supervise and others having but one. They sweep the main hallways, clean up apartments when tenants move out, light and turn off the gas in the stairways, clean up the laundries, and see that tenants keep the stairways in good order.

The rear section of the ground floor of one of the "dumb-bell" houses is used as a bathroom. The baths are accessible to women from 2 to 5 p. m. every day; to men from 5 to 8 p. m. on week days and from 8 a. m. to 12 m. on Sundays. The baths are heated with steam and supplied with cold water. All tenants have free access to the baths and use them liberally. No statistics of attendance are kept, and no bath tickets are issued. A housekeeper is in charge. A small sitting room adjoins the bathroom, where people wait their turn. The original cost of fitting up these baths was about $300, and the loss of rent from two two-room tenements results annually from their maintenance.

In houses of the "dumb-bell" pattern there are two laundries to each, one in the basement, for the occupants of the lower floors, and the other in the sixth story, for the tenants of the upper floors. The latter takes up the space of one two-room rear tenement. A considerable loss of rental results from the space they now occupy. Six two-room tenements are taken up in their provision. Each laundry is fitted with eight tubs. A steam pipe is fitted in each tub, so as to provide escapement near the bottom and thus heat the water that is in it. In the other houses of this group each apartment has its own washtub in the scullery. The fittings for laundries originally cost about $1,200.

Across the court from the bathroom, and occupying a similar space and position, is a meeting room. This was used as a reading room, and newspapers were furnished by the company, but the young people of the place became disorderly and it was closed. It should be said, however, that there was no one in charge of the room at that time. This space is now used as a mission Sunday school and for reunions. The cost of fittings was about $150, and the loss of rent of two two-room tenements results from the foundation of this institution.

These buildings were opened in 1882, and the stockholders include such prominent gentlemen as William B. Cutting, Henry E. Pellew, Cornelius Vanderbilt, William W. Astor, J. W. Drexel, R. T. Auchmuty, J. & W. Seligman & Co., and Amos E. Eno. It is interesting to note that such of these gentlemen as are living to-day not merely retain their financial holdings, but give to the enterprise a vast amount of personal interest.

The intention from the first has been not to divide any revenue in excess of 5 per cent per annum. These buildings are the pioneers among New York enterprises for the improvement of the homes of working people.

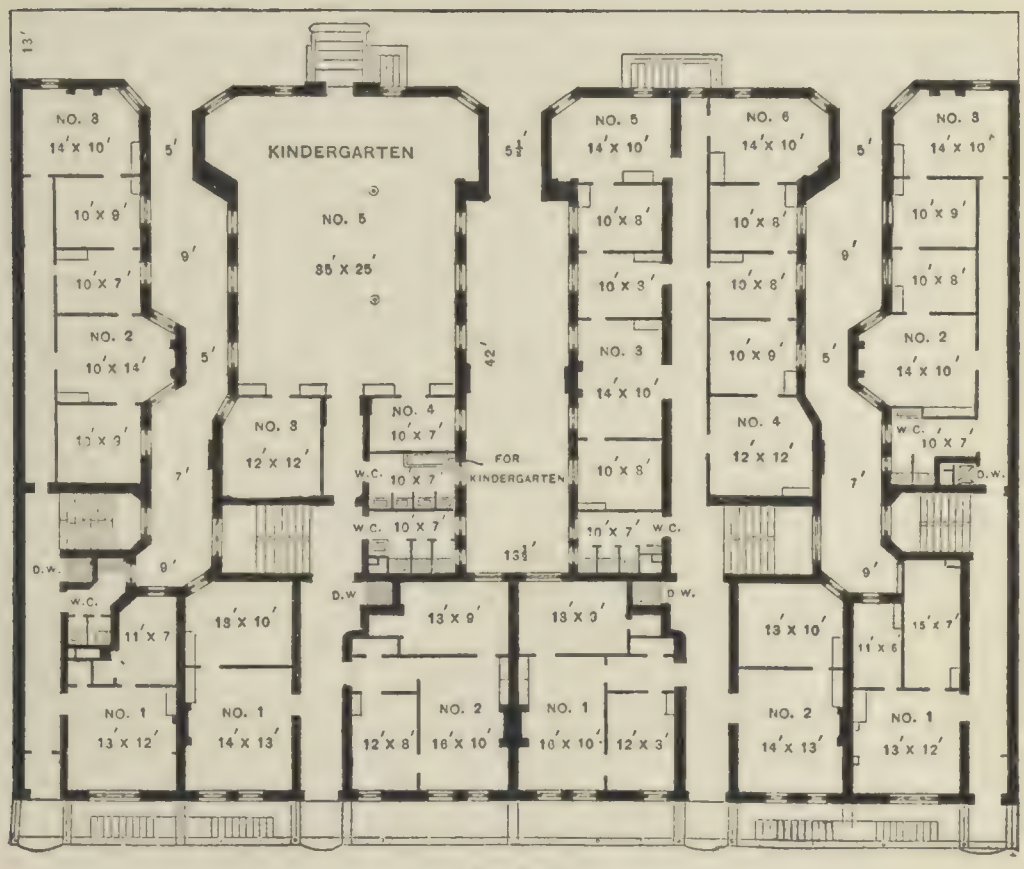
TENEMENT HOUSE BUILDING COMPANY, NEW YORK CITY.

The Tenement House Building Company of New York was founded in 1885. Their property was opened for occupancy December 1, 1887. In a circular issued soon after its formation, after calling attention to the terrible condition, sanitary and moral, of the overcrowded, ill-kept, and otherwise unhealthy tenements of the city, the company announced its purpose to contribute to the solution of the problem by erecting model houses, and managing them so as to secure a fair return upon the capital invested. Its dividends were limited to 4 per cent. All profits beyond this figure were to be set aside as a reserve fund, available to secure stockholders against cessation of dividends in periods of depression, when rent paying is a difficult matter and also to make rebates to tenants under certain conditions. The lower and densely peopled quarters of the east side were selected as the locality for building. Indeed, the model buildings were located but a stone's throw from the first tenement house built in America, in 1838.

The property of the Tenement House Building Company is situated at 338 to 344 Cherry street. The frontage of the lot is 116 feet 8 inches, and its depth is 98 feet 7 inches. The buildings cover the whole frontage, and run to a depth of 85 feet; 70 per cent of the whole lot is built upon. The open space consists of one central court, which is 58 feet long and 13½ feet wide, except at the rear end, where its width is 5½ feet. There are two side courts equal in length to the central, and varying from 5 to 9 feet in width. These courts are paved with granolithic, and are given up entirely to the free use of the tenants. Children use them as playgrounds, unhindered by the restrictions customary in tenement house districts. No part is covered to serve as a recreation ground in rainy weather. At such periods, and when it is cold, children play in halls and on staircases. The courtyards are also used for drying clothes. They are swept and washed twice daily.

The houses stand 4 feet back from the building line. This space is open to the level of the cellar floor. The idea is to furnish light and ventilation to the cellar. This excavation is protected by an iron grating, so that nothing may fall into it from the sidewalks.





First floor.

BLOCK BUILDING OF THE TENEMENT HOUSE BUILDING COMPANY, NEW YORK CITY.

PLAN NO. 16.

The buildings have six stories and measure 70 feet in height, reckoning from the basement floor. Brick is the material used in construction. Every arrangement has been made to guard against fire. The exterior walls are 18 inches thick. The roofs are of brick, guarded with iron fences. Staircases are surrounded on three sides by brick walls, and the stairways are of iron, with slate slabs. The stairs and floors throughout are practically fireproof, and the first-story halls and all water-closets have iron beams and tile floors. Brick walls divide the block into four separate buildings. Iron bridges at the top span the open space between the rear sections of each house, so that occupants of a burning quarter would have no difficulty in escaping to a place of safety. Special fire escapes also exist at the rear.

There are excellent basement cellars paved with granolithic. Certain sections are used for laundries and bathrooms, while others are partitioned off to furnish a storage closet for fuel or provisions. The accompanying view and ground floor plan (plan No. 16) give an idea of the external appearance of the buildings and the distribution and internal arrangement of rooms, halls, stairways, and sanitary conveniences. Hallways in the two end buildings of the group are 4 feet wide, and extend from the front to the rear. Three families on each floor find entrance to their apartments through them. The two middle hallways are 5 feet wide, extending also from front to rear, and are used by six families on each floor.

The two end buildings afford accommodations for three families on each floor. In front there is a three-room tenement, with one large and two small rooms. This tenement is separated by the stairway from the water-closets. Further back are two two-room tenements, in which the living room is 14 feet by 10 feet and the bedroom 10 feet by 9 feet. As a rule but one doorway connects the tenement, as a whole, with the hallway. The exceptions occur where the rear tenements are so arranged that they may become two suites of two rooms and a single room tenement, or one tenement of three rooms and another of two rooms. No further arrangement exists for securing independence and isolation to the individual family. None of the tenements are self-contained. Water-closets exist in the middle buildings in the proportion of one to every two families, and in the end buildings two for every three families. Water-closets are situated inside the buildings, either in the rear of the staircase or opposite the landings. Light enters directly into one from the outside, whence it is communicated indirectly to the others. The situation is not especially fortunate from a sanitary point of view. Each closet is provided with an automatic four-gallon flush and earthen bowl. They are heated by steam and ventilated by means of ventilating flues placed outside the window, through which access is given to an adequate supply of fresh air. Soil pipes open above the roof. Superior plumbing exists in every part of the building. Running water is provided on each floor. No limit is placed upon the quantity allowed tenants.

Hallways are heated by steam. Tenants heat their apartments from the kitchen fires. Occasionally oil stoves are used; but as a rule coal is the fuel burned. The houses being solidly built, there is no trouble in keeping the rooms at a proper temperature. Washing and drying clothes are not done within the apartments. Basement laundries exist, and the courtyards are used for drying purposes by running lines from the fire escapes to pulleys fixed on poles in the yard. Drying on the roof has been found impracticable on account of occasional appropriation of articles by others than the owner.

Gas is found only in the hallways, where it is kept burning till 10 p. m. at ordinary times, and until 11 p. m. on holidays. Tenants furnish the light in their own apartments.

Ashes and garbage are taken down by dumb waiters and emptied into cans under the sidewalk. The cans themselves are then lifted up through an opening in the sidewalk and emptied into the garbage cart.

Each apartment has a clothespress. There are sinks in the kitchen and, in some cases, shelf cupboards are built above them. There is an elevator for hoisting washing, food, fuel, etc. Walls of hallways are painted dark at the bottom and a lighter color at the top. Iron screens are provided for first-floor windows. The plans give the dimensions of each particular room. Ceilings on the first floor are 10 feet high, on the remaining five, 9 feet. There are 43 two-room and 61 three room tenements in the buildings. The total cubic air space averages 2,580 feet per family.

No epidemics have taken place within the buildings since their occupancy. Sickness is infrequent. Six adults and five children, in all, have died in five years. At the time the present inquiry was made, 94 tenements out of the total 104 were occupied.

The rental charged for two-room tenements is $8 per month in the first and second stories, $7.50 per month in the third and fourth stories, and $7 per month in the fifth and sixth stories. There are small tenements at $6.50. The rent of three-room tenements ranges as follows: At the front, $14 in the first story, $13.50 in the second and third stories, $12.50 in the fourth story, and $12 in the fifth and sixth stories; at the back, $10 to $11 in the first four stories, and $9.50 in the upper two. The total sum received for rentals during the last fiscal year was $10,792. The loss of rentals resulting from unoccupied lodgings was $1,460. About 10 per cent of the apartments were unoccupied during the year. Rents are paid monthly in installments. Tenants take the money to the office of the resident agent. The rules prescribe that payments must be made in advance, but installments are accepted during the current month whenever convenient. No explicit regulations exist for dealing with tenants in arrears. The committee of management inquire into such cases and deal with individuals according to circumstances. Sometimes arrearages may accumulate for four months before

eviction takes place. Leniency is shown particularly where the parties have been sick or out of work. The total sum lost through nonpayment of arrearages of rents during the last fiscal year was approximately $253.75.

The rentals have, generally speaking, remained stationary during the whole period. A rebate of 50 cents per month was made in the price charged for rear tenements on account of the erection of new buildings on adjoining property which interfered somewhat with the light. The rents are fixed at a slightly lower rate than for accommodations in the neighborhood, the best of which are not nearly so good as in the model buildings. Subletting is prohibited, but as a matter of fact the majority of the families keep boarders or lodgers. When objection is raised the interlopers are claimed as relatives. The occupants of the houses are principally Russian Hebrews engaged in shirt, tie, and cigar making.

The average term of occupancy during the first three years was found to be thirteen months, or more than double the average period for tenement houses, which is not more than six months. Repair and cleaning of apartments are, under such circumstances, a lighter charge for model than for ordinary tenements. Tenants do not sign any special lease. On entering they pay one month's rent in advance. Their receipt bears the printed statement that the apartments are rented on the following conditions:

The second of each month is the last date by which all rents must be paid.

A deposit of $1 must be made with the agent for the use of the keys and to insure their proper return. The deposit will be returned upon the surrender of all the keys.

Only quiet, honorable, and respectable families are accepted as tenants and tolerated in the house; no tailoring or any other kind of shop work is allowed in the rooms.

No nails are to be driven into the walls. Tenants must bear the cost of repair of any damages arising from their carelessness, and from the violation of this rule.

Tenants must (by turn) scrub and clean their hallways and closets.

No tenant is permitted to sublet any portion of his apartments nor take any lodgers, without the agent's consent.

Tenants are requested to prevent their children from playing on the stairways.

All garbage is to be removed to the cellar; the dummy may be used for this purpose.

Nothing shall be placed on the fire escapes. They shall be kept clear of incumbrances.

No solid matter is to be thrown into the waste pipes.

No playing upon musical instruments, nor any noise which would disturb other tenants is allowed after 10 p. m.

Tenants must not loiter about the halls and stairways.

Tenants are earnestly requested to report to the agent any violation of these rules on the part of any tenant or others.

Tenants not conforming strictly to all and each of these rules (as well as to other rules from time to time issued by the company) will not be allowed to remain in the houses.

Tenants are earnestly requested to report to the agent at once of any willful destruction of property or of any suspicious characters loitering around the hallways or roof.

The administrative department comprises a resident agent, who is in charge, and who collects the rent, selects tenants, and supervises the buildings. He has, for assistants, a helper at $20 per month and a charwoman, who is employed for each house, at $8 per month. Stairways and halls are scrubbed twice a week and swept every day. There is also a fireman, who attends to the engine and baths and controls the water supply.

The rear space of the lower floor of one of the middle buildings is rented at $37 per month for use as a kindergarten. Instruction is given to children free, those residing in the tenements being preferred. A charge of 2 cents per day is made for lunch. The society operating the kindergarten is quite separate from the corporation owning the houses.

Six baths constitute the only other accessories for the common use of occupants. No fee is charged for their use, and they are fairly well patronized. They are open Thursdays, Fridays, and Saturdays from 1 to 8.30 p. m.

The original cost of the lots on which the buildings are erected was $29,500. The cost of buildings, exclusive of lots, was $123,215.13. The resources available for this enterprise were derived from share capital to the extent of $83,075, obtained by private subscription, and $70,000 was secured by bond and mortgage, at 4½ per cent. The company in its by-laws limits dividends to 4 per cent annually. This rate has been fully earned since the second year of operation. The first year yielded a net return of 2½ per cent. The estimated value of the property as it stands to-day is $160,000. The average annual cost per room for maintenance and repairs was $14.50 during the last fiscal year. Taxes on the property amounted to $4.38 per room. The company, of course, not the tenant, pays the taxes.

BOSTON COOPERATIVE BUILDING COMPANY, BOSTON, MASSACHUSETTS.

A score or more years ago Dr. H. P. Bowditch drew attention to the condition of the homes of the poor in Boston, and urged the construction of better dwellings. The Boston Cooperative Building Company is one of the undertakings which has sprung from the humanitarian efforts of this enlightened man.

In Boston, as elsewhere in large urban centers, a knowledge of the conditions under which many of the poor are compelled to live has led to the creation of agencies to provide better dwellings for them and has powerfully helped in other ways the cause of sanitary reform. Reforms in building laws and wiser sanitary regulations have also come about.

The Boston Cooperative Building Company was incorporated in 1871. Its object, as stated in the act of incorporation, was to hold and improve real estate in Boston as homes for working people at moderate cost. Dividends were limited to 7 per cent per annum, which at that time was not considered excessive interest. An annual return was required to be made to the board of state charities of the amount of capital assessed and paid in, of the amount invested in lands and buildings, of income, expenses, and net profits during the year. The act was subsequently amended to enable the corporation to hold property to the amount of $300,000, and to acquire and improve real estate outside of the limits of Boston.

The Harrison avenue estate, situated on Harrison avenue, in the square bounded by Harrison avenue, East Lenox, Reed, and Newcomb streets, is the newest of all the property owned by this corporation, and to it, perhaps, the word model can best be applied. These blocks ought not to be classified as tenement houses, and they are not such in the sight of the law, yet can not be designated as model small houses under the previous definition. Houses of this sort in England are sometimes called cottage flats. Though this latter term does not seem to fully convey a description, still, for lack of a better name, it will be used.

The term cottage flat expresses the idea, because all of the necessary provisions for individual homes have been made. The only difference is that these dwellings instead of being placed side by side are superposed one above the other. As there is usually but one tenement on each floor, no provisions are necessary to prevent promiscuous mingling of occupants upon stairways and landings.

Subletting is not allowed, so that the independence and isolation of the individual family is fully guaranteed.

The total superficial area of the lot is 28,168 square feet. There are four blocks, comprising twenty-four houses—two of eight houses each and two of four houses each—and arranged in the form of a hollow square. Each house has 20 feet frontage, and is 38 feet in depth. The total superficial area built upon is 18,240 square feet. About 35 per cent of the lot remains uncovered. The open space is in the form of a park dedicated to the free use of occupants. There is a driveway around it which is paved with asphalt. The remainder is subdivided into walks and grassplots planted with trees, flowers, etc. It contains seats, and is used as a playground for the children of tenants. No part has been covered to serve as a recreation ground during rainy weather.

The buildings are of three stories, and 30 feet in height. They are constructed of brick, with roofs of tar and gravel. The staircases are made of wood. There are no special arrangements made to render the buildings absolutely fireproof. A cellar or basement has been provided under the whole space built upon. It is paved in concrete, and is utii-

ized for storage of fuel in a separate bin for each tenant. A room, protected by a wall, has been provided for ashes and garbage. The ashes and garbage are put in barrels and placed in this space, whence they are emptied into carts.

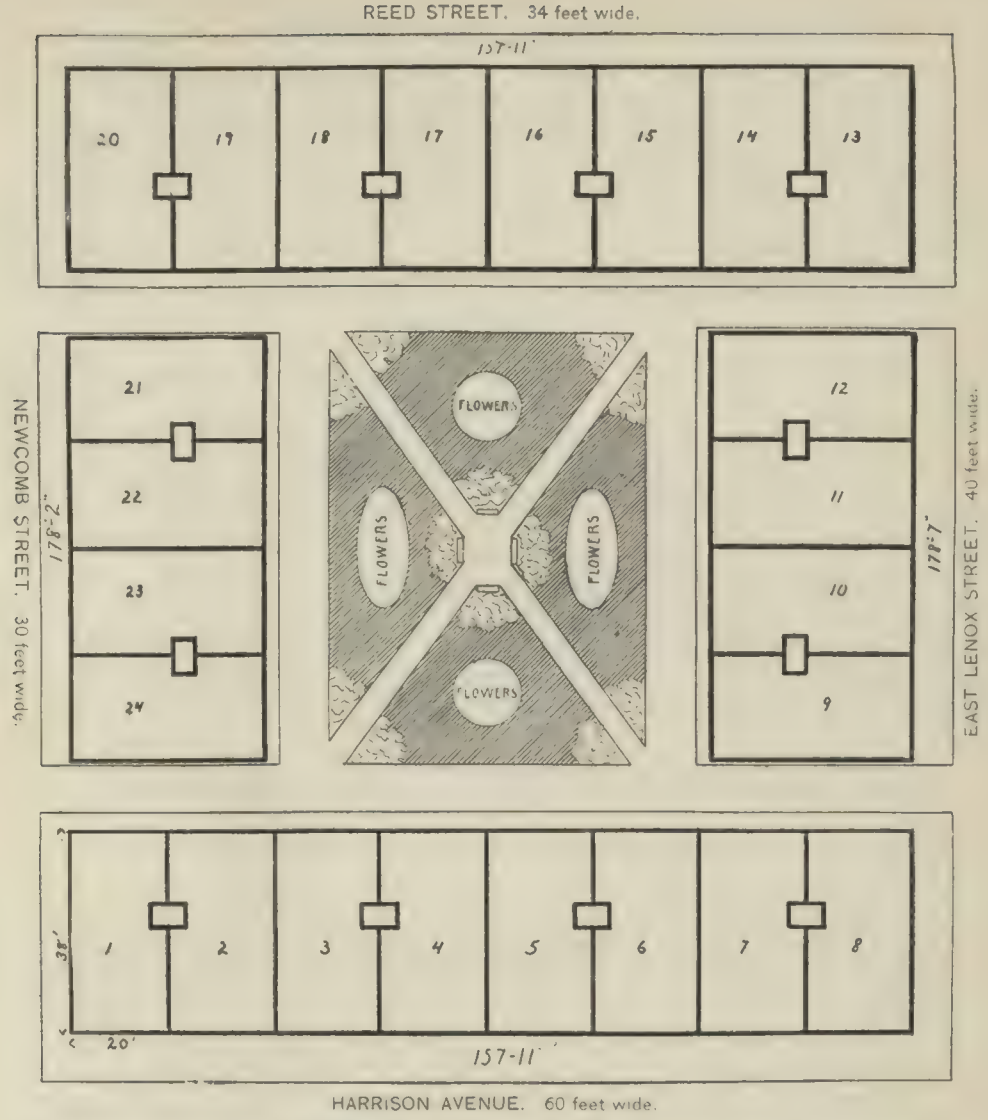
The four corner houses contain each six tenements of two rooms each. The other twenty houses contain each a three-room tenement on the first floor and a four-room tenement on the second and third floors.

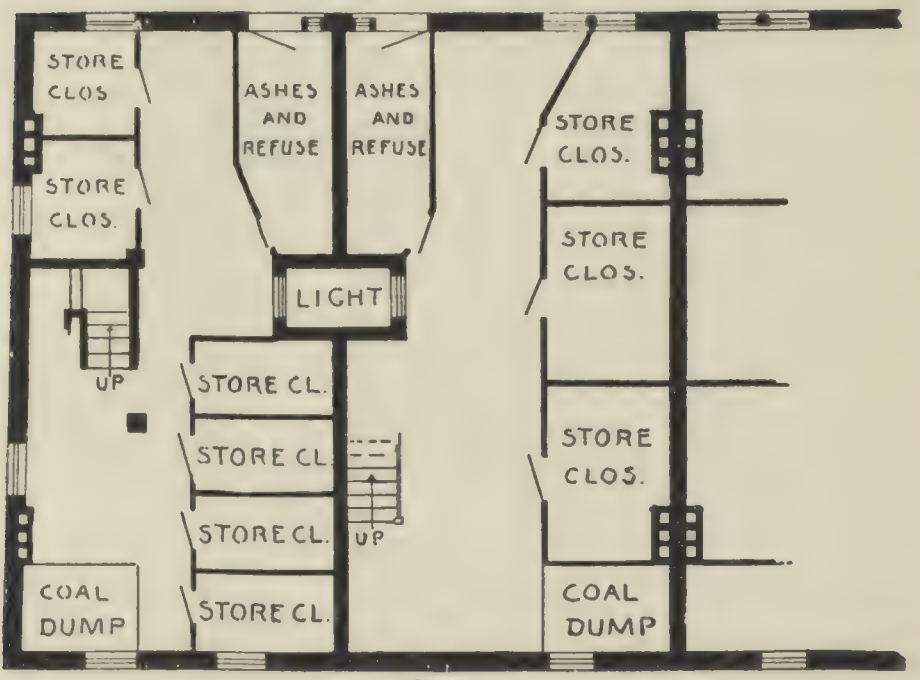
Every room communicates, either by doors or windows, with the open air. There is an open airshaft on one side of each house and transoms are placed over all the doors. A skylight is built above each stairway. Each separate lodging has a water-closet for the sole use of occupants, except in four corner houses, where the two families on each landing use one closet in common. Water-closets are placed inside the building, adjoining the light shaft, and are provided with windows opening upon the latter. The system in use is the short hopper chain flush. Plumbing is carefully put in and connection is made with the city sewers. The water supply is unlimited.

Tenants furnish their own heating. Neither gas nor electricity is used for lighting. Tenants do their washing in their own rooms and dry the clothes on the roof, where supports have been provided. Tenants furnish their own cooking ranges. For refuse receptacles the company has provided for each house three galvanized iron barrels, two for ashes and one for garbage. Each dwelling has a pantry provided with a place for a flour barrel, a place for china, and drawers for groceries. In every kitchen and living room there is place for a stove. Every window has outside shutters. Sitting room walls are papered and provided with picture moldings. The latter have also been placed in bedrooms. The rooms are wainscoted in polished oak. Above this the walls are papered. There is a glass hall door in the front of each house. Rules and regulations have been neatly framed, and hang in the hallway of the first floor. Each kitchen has an iron sink, a washtub of soapstone adjoining, a pantry, and a sideboard.

The buildings contain 24 two-room, 16 three-room, and 32 four-room dwellings. The cubic contents of the first category are from 1,820 to 1,888 feet, of the second 3,445 feet, and of the third 3,861 feet. Two-room tenements are of two classes, in which the living rooms are 10 feet by 13 feet and 9 feet 6 inches by 13 feet, while the bedrooms are 8 feet by 13 feet 3 inches and 8 feet by 13 feet, respectively. In a three-room dwelling the kitchen is 10 feet by 14 feet 8 inches, the living room 12 feet by 15 feet, and the bedroom 8 feet by 13 feet. In a four-room dwelling the kitchen is 10 feet by 14 feet 8 inches, the living room 10 feet by 15 feet, one bedroom is 8 feet by 10 feet 3 inches, and the other 8 feet by 13 feet. The ceilings are 8 feet high throughout.

The general ground plan and plan of basement, and the first, second, and third floor plans are shown in the accompanying cuts (plans Nos. 17 A and 17 B)

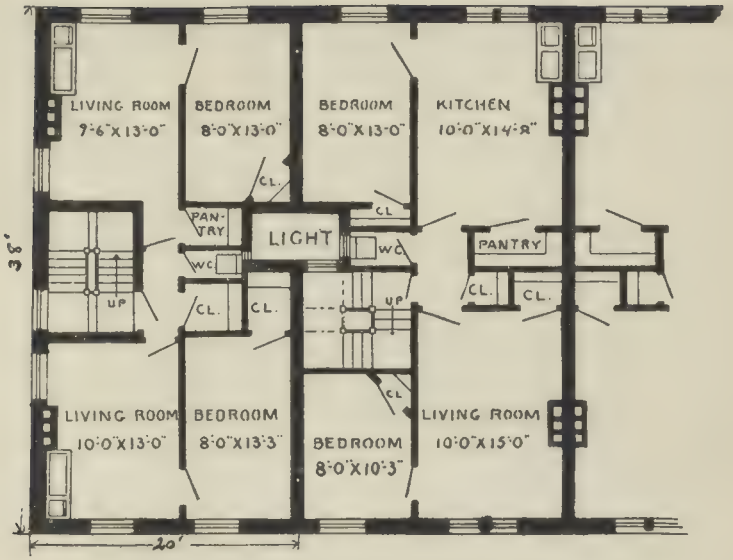




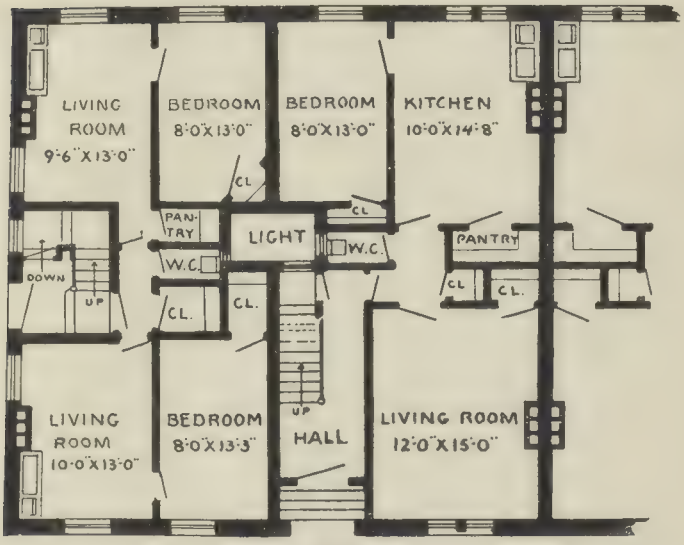
Basement

HARRISON AVENUE ESTATE OF THE BOSTON COOPERATIVE BUILDING COMPANY, BOSTON, MASS.

PLAN NO. 17 A.



Second and third floors.



First floor.

HARRISON AVENUE ESTATE OF THE BOSTON COOPERATIVE BUILDING COMPANY, BOSTON, MASSACHUSETTS.

PLAN NO. 17 B.

The ground plan of the property is shown in order that the dispositions which have been made in the provisions of the large interior courtyard, with its four approaches left open for ventilation, may be fully understood. There are in all 84 separate dwellings, 62 of which were occupied during the whole of the last fiscal year by about 280 persons.

Rents of two-room dwellings, which are situated in the corner houses, are $2.50 per week for the front and $2.25 for the rear; the three-room dwellings, which are situated on the first floor only, cost $3.25 per week; the four-room dwellings, which are situated on the second and third stories, cost $3.75 and $3.50 per week, respectively.

The health of the tenants during the last fiscal year has been excellent. Only seven deaths have occurred, of which three took place in one family. There were four deaths from scarlet fever, one from cholera infantum, one from spinal meningitis, and one from consumption, all of children under 8 years of age.

These buildings were opened for habitation on September 1, 1892. The original cost of the lot was $16,900.20, while the cost of the building, parking, etc., was $100,021.61.

The East Canton street property, though the oldest belonging to the company, deserves to be described because it is well adapted for the purpose of housing the poor, and because successful financial results have uniformly attended its administration. No. 8 Andrew place is chosen for description. The lot has a superficial area of 820 square feet 2 square inches. About 68 per cent of it is built upon.

The open space is found at the rear. It is paved with brick, and is dedicated to the free use of occupants. It is sometimes used for drying clothes. The building is of three stories and 30 feet in height. It is constructed of brick, with roofing of tar and gravel. Staircases are of wood. The building is so low that exit by windows and the roof is easy, hence no special means of escape is provided in case of fire. The cellar is paved in concrete, and provided with bins for coal and wood. The hallways, corridors, etc., are distinctly private and not regarded as prolongations of the public street. Two doors from each family lodging open directly upon the stairway or hallway. Each family has a floor to itself. Every room communicates directly, either by doors or windows, with the open air. Windows have been provided for ventilation in the entries. There are movable transoms over the doors. Each family has a separate water-closet for its own use, which is situated in the cellar. They are provided with short hoppers and are trapped. The plumbing and sewerage are in conformity with the building laws of the city. Laundry work is done within the dwelling. An unlimited supply of water is allowed. Heating is done by stoves within the apartments, and lighting with kerosene lamps. Ash barrels are provided as garbage receptacles. The interior decorations are confined to mantel and clock shelves. Doorbells exist for the separate lodgings.

The building provides three separate dwellings. Living rooms are 11 feet by 12 feet 2 inches, bedrooms 7 feet 8 inches by 13 feet 6 inches, and the kitchens are 13 feet 6 inches by 9 feet 10 inches. Ceilings are 9 feet high. Dwellers on the East Canton street estate are particularly proud of their well-kept garden.

This particular building was opened for habitation on April 15, 1888. The original cost of the lot was $820 and of the building $3,000. The tenements rent for $130 per year on the first story, and $143 each on the second and third stories.

The first building owned by this corporation was opened for habitation in July, 1872. It now owns five separate estates, namely, East Canton street, Thacher and Endicott streets, Clark street, Phillips street, and Harrison avenue. The total number of rooms in all the estates is 960. Separate lodgings are not sold to individuals inhabiting them.

The total amount of present share capital of the corporation is $219,000, which has been derived from subscription. The amount of borrowed capital is now $93,600, which is secured by mortgages placed on the property of the corporation. The annual rate of interest paid averages about 4¼ per cent. A reserve fund, which is known as a renewal account, amounting to $50,229.29, and which came from profits, had been set aside up to the end of the last fiscal year. Two thousand dollars is set aside annually to the renewal account, and this is now considered more than enough to mark off depreciation on existing buildings. The annual dividend to stockholders during the last five years has been 6 per cent.

The following table shows the operations of the company during the last fiscal year:

REPORT OF THE BOSTON COOPERATIVE BUILDING COMPANY, 1893.

Estate.	Gross rent.	Agent.	Repairs.	Water rates.	Taxes.	Care and cleaning.	Sundries.	Net rents.
East Canton street	$18,622	$603	$2,754	$738	$1,738	$176	$492	$12,031
Thacher and Endicott streets	6,783	447	508	262	619	222	186	4,541
Clark street	2,031	113	441	81	181	87	20	1,107
Phillips street	3,154	212	663	136	192	140	181	1,629
Harrison avenue	9,966	614	294	427	1,419	80	275	6,857
Total	40,556	2,079	4,660	1,644	4,149	705	1,154	26,165

The total loss of rentals resulting from unoccupied lodgings during the last fiscal year was $4,897. The Harrison avenue estate was largely responsible for this unfavorable showing. There out of 84 tenements only 62 were let, resulting in loss by vacancies of $3,782. The reasons stated are:

1. There has been much building in the neighborhood during the past three years.

2. The company itself built four very large blocks at once. The possibility of not being able to fill them all was fully discussed, but it was decided to build around the entire square in order to give the estate an air of completeness.

3. The hard times have affected the company. About twenty families left because of decreased income, and one-third of the present tenants are working on reduced rates or on half pay.

The Harrison avenue estate provides for the best class of tenants housed by the corporation, Thacher and Endicott streets for a lower, and Clark street, Phillips street, and East Canton street for a lower class still.

The following table shows the total possible rental and the losses from vacancies and nonpayment during the last fiscal year:

RENTALS AND LOSSES OF THE BOSTON COOPERATIVE BUILDING COMPANY, 1893.

Estate.	Total possible rental.	Loss by vacancies.	Loss by nonpayment.	Total rent received.
East Canton street	$19,357	$635	$100	$18,622
Thacher and Endicott streets	7,068	268	17	6,783
Clark street	2,054	12	11	2,031
Phillips street	3,545	200	191	3,154
Harrison avenue	13,984	3,782	236	9,966
Total	46,008	4,897	555	40,556

The total estimated value of lands and buildings belonging to the corporation is now $350,326.54.

Rents are paid weekly in advance. In some properties they are called for by an authorized agent of the company, and in others they are paid by the tenant at the office. One week's notice is required of intention to quit. There is no general rule for dealing with arrearages, each case being judged on its merits. The total sum lost through nonpayment of rents during the last fiscal year was $555. It would not be fair, however, to take this result for 1893 as an average, for the reason that unfavorable financial conditions caused a great deal of distress among workingmen rent payers. Rentals have advanced in estates situated at the north end of Boston, as there are more people looking for house accommodation in that section than can be supplied. Immigration has had considerable to do with this state of affairs. The rentals in other estates have remained stationary. It is the aim of the corporation to make the rental of its property conform strictly to market rates. It is said that about 25 per cent of the earnings of heads of families among the company's tenants goes for rent.

There is a very interesting statement in the last annual report of the company in reference to duration of tenancy. It appears that the number of families who have lived in the East Canton street estate, the oldest of the company's properties, and the only one for which the record has been compiled, is as follows: 11 for five years; 6 for six

years; 5 for seven years; 5 for eight years; 3 for nine years; 1 for ten years; 4 for eleven years; 1 for twelve years; 3 for fourteen years; 5 for fifteen years; 5 for seventeen years; 2 for eighteen years; 2 for nineteen years; 6 for twenty years; 2 for twenty-one years; a total of 61 families. In addition, 31 families have been tenants during periods of from two to five years, making 92 families, or nearly two-thirds of the total number, who may be classified as permanent tenants. "The remaining third," says the report, "is composed of those who change their lodgings often, and cause our agent much care and labor. As a rule, sickness, drinking, or laziness, with very little sense of responsibility to their landlord, marks this class."

The following table of occupancy may not be without interest:

TENANTS AND WEEKLY RENTS OF TENEMENTS OF BOSTON COOPERATIVE BUILDING COMPANY.

Street.	Houses.	Condition.	Rooms.	Families.	Persons.	Weekly rent per room.
East Canton	18	Old	236	79	279	$0.91½
Bush	4	Old	56	23	57	.78½
Thorne	2	Old	28	9	39	.75½
Andrew	3	Old	34	11	37	.89½
Andrew place, 1 and 2	2	New	24	12	28	1.08½
Andrew place, 4, 6, 8 Andrew place, 10, 12	5	New	39	15	53	.92½
Clark	5	Old wooden	52	17	67	.67
Endicott, 175	1	Old brick	39	13	44	.80
Thacher, 21	1	Old brick	24	10	38	.87
Thacher, 19	1	Old brick	21	8	21	.85
Thacher, 15	1	New brick	23	9	50	1.05½
Thacher, 13	1	New brick	30	15	45	1.16
Phillips, 72, 80	8	Old, 7 wooden	86	33	77	.68
Harrison avenue	24	New	268	62	240	.98

As regards the nationalities of heads of families the Irish considerably predominate. The tenants in the Harrison avenue estate are chiefly carpenters and clerks, with some engineers, molders, and other mechanics. In the East Canton estate 20 per cent are laborers employed by the municipality, whose work is rather irregular. In prosperous times they earn from $10 to $15 per week. Other inhabitants are generally stablemen, teamsters, stonecutters, and wood sawyers. In Thacher and Endicott streets the chief occupations represented are fishermen, barbers, peddlers, and longshoremen.

Tenants are not allowed to sublet their lodgings, and only under exceptional circumstances are they permitted to take boarders. Prospective tenants make personal application and give references. If accepted they are not required to sign a lease. The following regulations to be observed by tenants, though pertaining particularly to one of the estates, are practically applicable to all.

These houses have been built with the view of securing in every way the comfort of the tenants. In return the company require that they should be kept in the highest degree of neatness.

Each tenant will be expected to take care of his or her own entry and the stairs below. The tenant on the lowest floor will take care of the

front steps also. The tenants will take turns in the care of the sidewalk, and when getting in coal or wood clean the sidewalk and shut the cellar windows. Also will take turns in cleaning the cellar and the stairs leading to the roof.

All swill and ashes shall be put dry into their respective places in the yard, and the tenants are particularly requested not to mistake the ash for the swill place.

No refuse of any kind, coarse paper or rags, not even a match, shall be thrown into the water-closets.

Any damage done by a tenant is to be made good at his or her expense.

It is forbidden to deface the walls or floors by cutting or writing on the woodwork, scraping matches, driving nails, or spitting. Splitting wood in the apartments is strictly forbidden.

No lines, cloths, or clothes to be hung from the windows, either back or front. No mats or clothes are to be shaken from the windows, nor any refuse matter to be thrown into the yards.

All clotheslines must be taken down after using, either on the sheds or in the yards.

All front doors must be shut at 10 o'clock, after that tenants will come in with latchkeys.

No dogs or cats will be allowed in the houses, unless by special permission of the agent.

No signs are allowed to be put on the houses without permission.

Satisfactory references will be required.

The rent must be paid weekly in advance.

The tenancy may be terminated by either party on one week's notice.

No tenant can underlet rooms or take boarders or lodgers without special permission.

No tenant will be admitted whose family have not all been vaccinated.

Any questions that arise are to be referred to the agent.

These rules will be strictly enforced, by the order of the directors.

The management of each separate estate, it must not be forgotten, is confided to a committee composed of ladies. Indeed, it is doubtful if equally successful results, computable from the economic, but immeasurable from the moral and ethical points of view, would have been attained had not the cooperation of kind-hearted but sagacious and good business women been secured. Seventeen persons compose the committees of management of the five different estates, and of these eight are well-known Boston ladies. Lady agents are in charge of all the estates, and attend to the good order and general management of the property.

IMPROVED DWELLINGS ASSOCIATION, BOSTON, MASSACHUSETTS.

The Rufus Ellis Memorial building, which is chosen for description, is located at the corner of West Second and Athens streets, South Boston. This is the first of the association's experiments in building improved tenements in the southern part of the city. The situation was not a particularly bad one, though in a dangerous quarter. The inhabitants of the surrounding neighborhood were of a very low class, and the buildings were old and dilapidated. It was a center for young

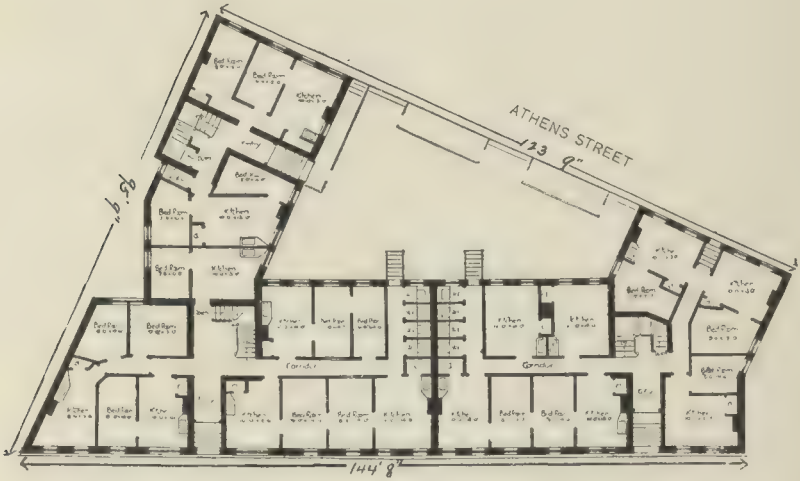
men known as roughs or toughs. It was the situation of the place with reference to transportation, convenience, and facility of access which ultimately induced the association to try what was at best a precarious experiment. Dorchester avenue, Broadway, and Dover street extension were not far off, and the locality was not more than twenty minutes' walk from the post office. In spite of the drawbacks, the building slowly gained a respectable class of occupants. Great care was, of course, exercised in the choice of tenants, and the association was obliged to leave many tenements vacant during a large part of the year, with a resulting loss of income, in order to make sure of getting a fair class of occupants. The wisdom of this policy has been justified, and the agent in referring to the matter says: "The house is now well tenanted so far as respectability and temperance are concerned, and every good family is a guarantee of more." The building is situated between two streets, fronting on West Second street, a thoroughfare 50 feet wide. The total superficial area of the lot is 10,336 square feet. A generous portion of it has not been built upon. In the rear is a large playground, and a large space on one side of the building has been left open on which children are allowed to play. The association offered this open lot to the city at cost price provided it be occupied as a permanent open space. No action has yet been taken. The Children's Aid Society, however, fitted up the space as a small park, and children of the neighborhood can come in and play so long as they maintain orderly conduct. The arrangement was tried, in the first instance, of giving the children the cellar to play in on rainy days, but the privilege was abused, and efforts were therefore made to induce each family to keep the boys in the house, especially in the evening. Since that time there has not been so much trouble.

The building is four stories high and is built of brick. There is a gravel roof with rough board walks. Stairways are constructed completely of iron with iron railings and are surrounded by brick walls. The iron stairways and the concrete floors in the main corridors and water-closets represent the special precautions that have been taken to make the building fireproof. Balconies also connect the different sections of the house, and there are fire escapes as required by law. There is a cellar paved in cement and divided into compartments for fuel and other storage. Each tenant has a separate space. A basement dwelling has been fitted up for the care-taker. There are skylights over the staircases which extend to the roof.

Reference to the accompanying plan (plan No. 18) will furnish an idea of the interior arrangements. As a rule only one door from the family lodging opens directly upon the hallway. No special arrangements have been made to prevent promiscuous mingling of occupants upon stairways or hallways, or otherwise to preserve the isolation of the individual family.



Second, third, and fourth floors.



SECOND STREET.

First floor.

RUFUS ELLIS MEMORIAL BUILDING, BOSTON, MASSACHUSETTS.

PLAN NO. 18.

Every room communicates directly with the open air. There are transoms over the doors opening to the corridors, and rooms not communicating by doors with the corridors have windows opening to them. Water-closets exist in the proportion of one to each two families. They are placed inside and have been provided each with an automatic flush and are ventilated by transoms and a special airshaft. There is an iron sink and a large pantry in every kitchen. An unlimited supply of water is allowed. A stove in the cellar heats the halls and keeps the water pipes from freezing. Halls are lighted by gas. Washing is done in the apartments and drying on the roof, wooden frames for hanging clothes being provided. The front steps on the first floor are of iron with glass bull's-eyes, serving to light up the cellar space.

No cooking ranges have been put in by the association. Barrels in the courtyards serve for the garbage receptacles. There are shelves in bedrooms, but no clothespresses. Chopping blocks have been placed in the cellar for the convenience of the tenants in splitting wood. There is a wainscoting of wood in the hallways and kitchen. Bedrooms have chair boards on the walls.

The prevailing size of one-room tenements is 14 feet by 11 feet. In two-room tenements the kitchens are about 10 feet by 13 feet and the bedrooms 7 or 8 feet by 14 feet. In the average sized three-room tenements kitchens are 10 feet by 13 to 14 feet, bedrooms 8 feet by 12 feet, 8 feet by 15 feet, 7 feet by 14 feet, and 6 feet 6 inches by 14 feet. Some of the tenements are larger. There are 4 four-room tenements, which in reality are double two-room apartments and may be so divided. Here the kitchen is 10 feet by 14 feet, with a bedroom of the same size. The two other bedrooms are 8 feet by 14 feet each. Ceilings are 8 feet 6 inches high in all the stories.

Fifty-six families occupied the building during the last fiscal year. There have been no epidemics in the building, and in 1891, when typhoid fever and general sickness prevailed in South Boston, only two cases of slight illness were reported.

The total sum received for rent during the last fiscal year (1893) was $4,521.70. The one-room tenements rent for $1 to $1.10 per week in the first three stories and $1 in the fourth story; two-room tenements vary from $1.50 to $1.80; three-room tenements vary from $1 to $2.50; four-room tenements vary from $2.75 to $3.30. Three-room tenements renting at $1 per week are not desirably located. The Rufus Ellis Memorial tenement building is the only model tenement structure owned by this association. It has some other property, which is not considered model.

The building was opened for habitation December 1, 1888. The original cost of the lot was $10,500, and of the building, exclusive of land, $50,442.81. The capital stock of the association is $100,000. The average annual dividend paid since its formation has been 4 per cent. In addition, from 1¼ to 1½ per cent has annually been set aside for

reserve and invested in another estate. The total amount of borrowed capital is $17,000, upon which 4 per cent interest is paid. The money has been borrowed on mortgages. Taxes paid for the Rufus Ellis Memorial building in 1893 amounted to $678.40. The total estimated value of the property of the association is $120,687.04. The gross rental for the fiscal year 1893 was $10,249.90.

The average number of vacancies has been few. Rents are paid weekly in advance, and are called for by a lady agent. If tenants are out of work and worthy three weeks' arrearages, in exceptional cases, are allowed. Tenants almost invariably do not pay the last week's rent before moving out. The total sum lost from unpaid rents during the last fiscal year (1893) was $96.75 for the Rufus Ellis Memorial building. Five hundred and five dollars were lost in the same building on account of vacancies. Rentals have declined 10, 15, and 20 per cent, according to classification of apartments. The reason for the decline is that one of the streets is noisy and does not furnish a desirable outlook. In other cases rents were reduced because desirable tenants were unable to pay more, and others, having learned of the fact, insisted upon a like favor being accorded to them. The price now paid is about 7 cents per room higher than for frame houses in the neighborhood. No comparison can really be made on the basis of equal accommodations, because equally good apartments are not to be found in the neighborhood.

The following table gives the occupations and earnings of heads of tenant families in the Rufus Ellis Memorial building:

OCCUPATIONS AND AVERAGE WEEKLY EARNINGS OF TENANTS OF RUFUS ELLIS MEMORIAL BUILDING.

Occupation.	Number.	Average weekly earnings.	Occupation.	Number.	Average weekly earnings.
Nurse	1		Photographer's assistants	2	
Charwoman	1	$8.00	Employee, bag factory	1	
Freight handler	1	9.00	Housekeeper	1	
Laborers	6	10.50 to 12.00	Carpenters	2	
Painters, house	2	12.00	Waitresses	4	$3.00 to 4.00
Office cleaners	4	8.00	Watchman	1	
Rope maker	1		Peddler	1	
Expressmen	3	10.00	Waiter	1	
Tailor	1		No occupation	7	
Harness maker	1		Carriage smith	1	15.00
Engineers	2		Janitor	1	
Hackman	1		Fishermen	2	
Laundresses	3	5.00	Compositor	1	
Stonecutter	1	18.00	Laborer, sewer department	1	
Hostlers	7	9.00	Employee railroad	1	
Printer	1		Bartender	1	
Longshoremen	5	10.50	Pavers	3	12.00
Employee, nail factory	1				
Clerk	1				
Employees, sugar factory	2	9.00 to 10.00			

The officers of the association believe that from 17 to 20 per cent of the earnings of their tenants go to pay rent. Tenants may not sublet or receive boarders except with special permission. No formal lease is entered into. The rules and regulations are printed upon the cover of the receipt book which each tenant receives. An extra charge of 50 cents is made upon the beginning of the tenancy. This is returned

when tenants leave, provided they hand back their keys and leave the rooms clean.

Stairs and entries must be swept every morning, and the latter scrubbed once a week by each tenant in turn. The care of water-closets is left to the tenants, who must scrub them twice a week. Outside doors are locked at 10 o'clock in the evening, and after that hour a latchkey must be used. Children are prohibited from playing on the roof, balconies, stairs, or in the cellars. Disorderly or intoxicated tenants are expelled at once.

The Rufus Ellis Memorial building is in charge of a care-taker, a woman who, with her husband and child, lives on the premises. The general supervision of this and the other estates is confided to the lady agent, who visits the buildings three times a week, collects the rents, receives complaints, notes all repairs needed, etc.

The property of this association is well situated as regards proximity to places of work for its tenants. They are about twenty minutes' walk from the business center. Rapid transit communication exists for those who desire to ride. The great bulk of tenants are employed in the immediate neighborhood of their residences.

The Children's Aid Society has established a library in the building and appoints resident children as librarians. The occupants of the Rufus Ellis Memorial building have been kindly remembered by outside agencies. A home library was donated in 1890 by a philanthropic lady. The "Country Week Society" has extended its operations to the occupants of the building, and car and steamboat rides have been furnished by the Young Men's Christian Union. The report of the agent for 1892 states that the rules of the house have been generally observed, new tenants, stimulated by the example of the regular occupants, readily falling into line. The principal trouble came from the children, especially from the boys. What they seemed to lack was interesting occupation for their spare hours, and the suggestion was made that a free industrial school could be opened in the neighborhood with great profit. The association has recently opened a playground for children under 10 years of age in the free space immediately adjoining the building.

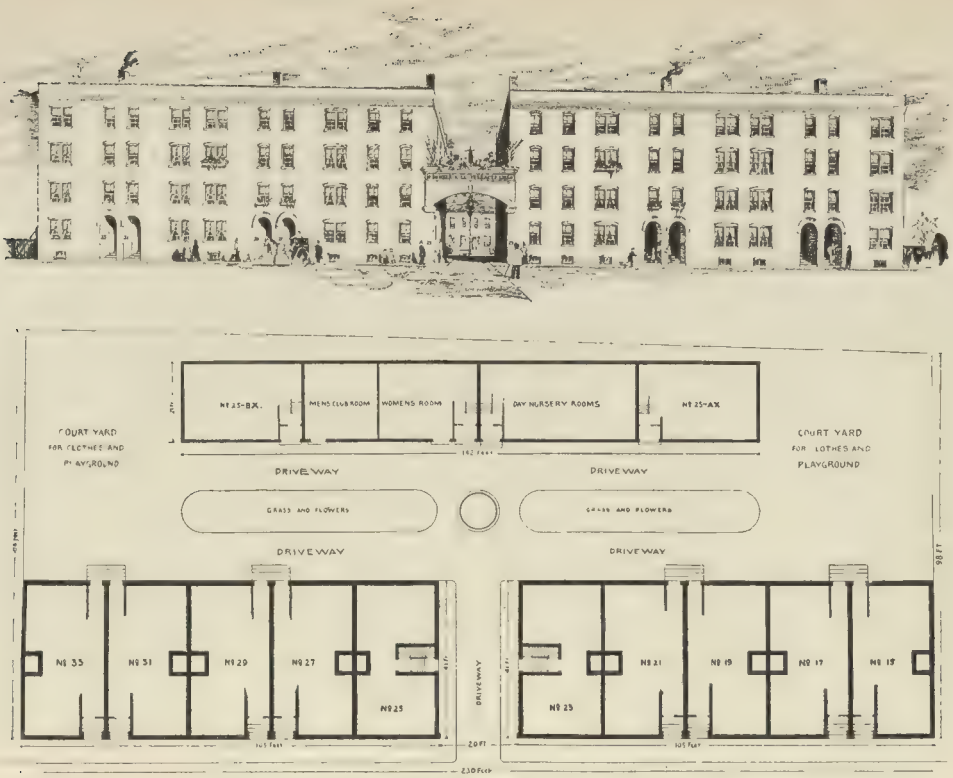
It is an unquestioned fact that the location of this model building has been productive of great benefit to the neighborhood; but greater employment for the spare energies of the younger inhabitants seems now to be the most urgent need in order to fully establish the useful work.

BUNKER HILL TERRACES, BOSTON, MASSACHUSETTS.

An account of model housing in Boston would not be complete without reference to the very interesting enterprise of James W. Tufts, in Charlestown. When this locality was visited in December, 1893, the buildings had not been completed, and therefore financial returns can

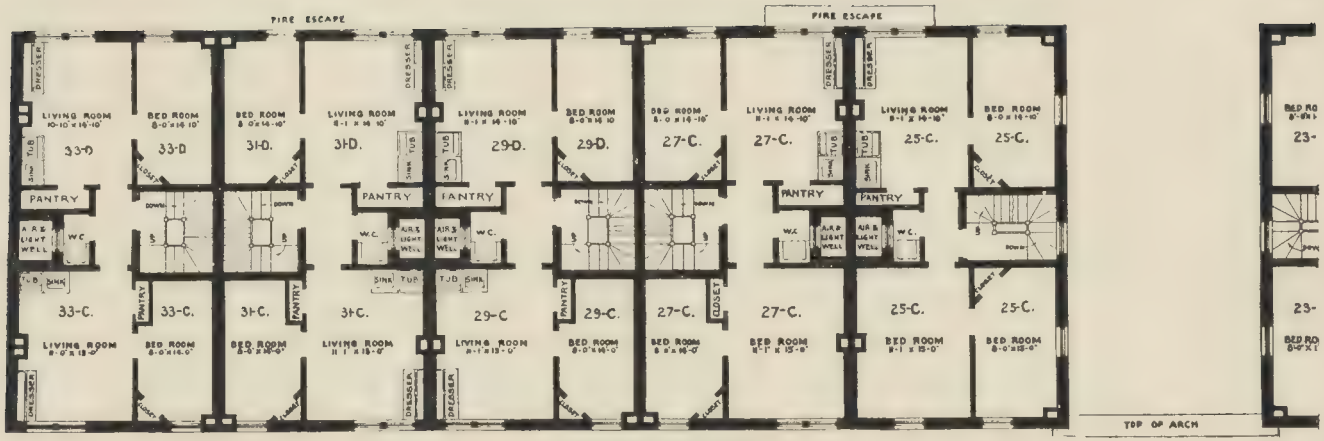
not be given; but a sketch of the buildings, together with plans and some statements in reference to rents and probable results, is appended.

The buildings are situated on Tufts street, near Bunker Hill. The frontage of the lot is 230 feet, and the depth 98 feet at one end and 104 feet at the other. Almost half of the ground is covered with the two buildings, each of which has a frontage of 105 feet. They are separated by a driveway 20 feet wide. A portion of the rear space is occupied by an annex, which is 142 feet by 21 feet. The open space is in the form of a yard between the tenement buildings proper and the annex. It is paved with blue gravel. In the center is a grass plot. The space is reserved entirely for the free use of occupants and for a drying ground for clothes. No provision is made in the way of a covered space for recreation ground for children in rainy weather. The buildings, which are of brick, comprise four stories and are 46 feet high. The thickness of the exterior walls is 12 inches. The roof is of tar and gravel and has a wooden walk. Stairways are constructed of wood, and are surrounded by brick walls. These, with four party walls, which separate each building into five distinct sections, and fire escapes in the rear, accessible to all tenants, furnish the amplest provision against danger from fire. There is a storage cellar to the buildings, paved with 3 inches of concrete, then four sheets of tar paper, and 12 inches of concrete on the tar paper. The paving of the cellar alone cost $5,000, and every effort has been made to make it absolutely proof against dampness. On the first floor the hallways extend from front to rear, except in the houses next the driveway to the court, and are 6 feet wide at the front and 4 feet at the back. Two sets of glass doors in front, 5 feet apart, form a vestibule in each house. Glass doors are also used at the rear entrance to the halls. The doors are artistically made, and stained glass has been used. The first floor hallways communicate with the stairways, which are in the middle of the building. The staircase shafts are about 8 feet square, and have an open space about 2 feet by 3 feet, extending from the ground floor to the roof. There is a ventilator at the top of the staircase, and ventilation is also afforded from light wells, which extend to the roof. There will be, as a rule, two families to one staircase landing where there are one and two-room tenements, and one family to a landing in the case of four-room tenements. Every room communicates directly, either by doors or windows, with the open air. Four-room tenements have through circulation from front to rear, but other tenements get ventilation on one side from the staircase shaft and on the other from the street or court. Each of the four-room tenements has one water-closet; the others have one for two families. Water-closets are situated inside the buildings, and are ventilated by the air from the light wells adjoining. The automatic flushing apparatus is used. Each building has two soil pipes extending from the roof to the cellar which connect separately with the sewer. The yard has catch-basins, and these and all conductors and areas communicate directly with the

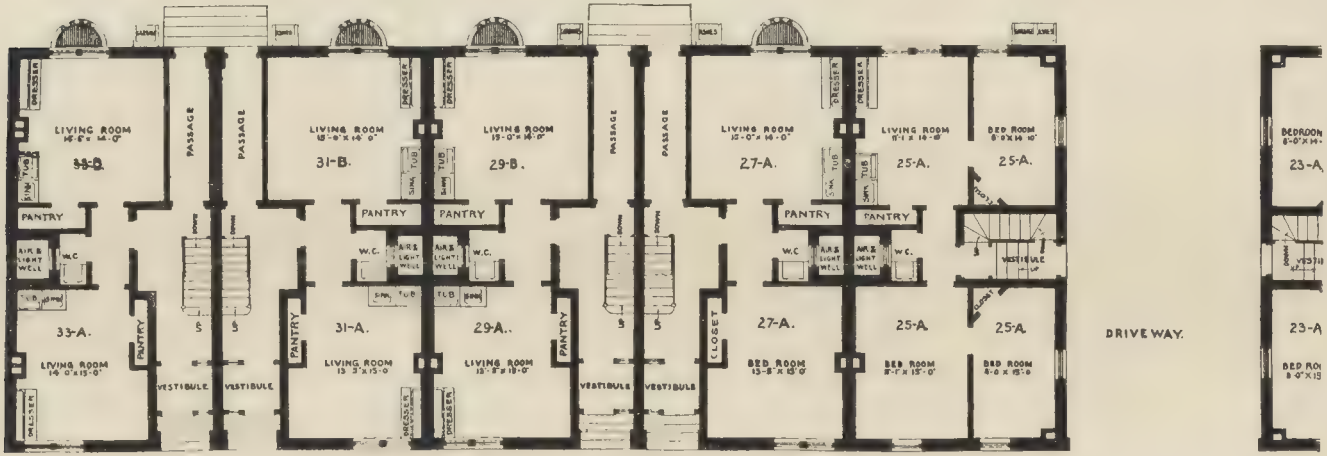


BUNKER HILL TERRACES, BOSTON, MASSACHUSETTS.

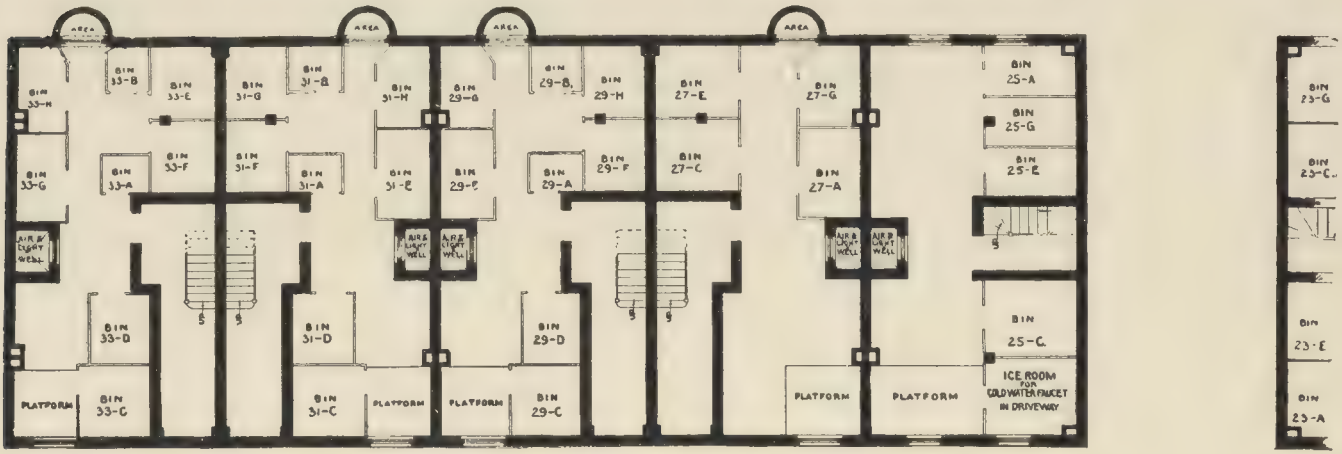
PLAN NO. 19 A.



Second, third, and fourth floors



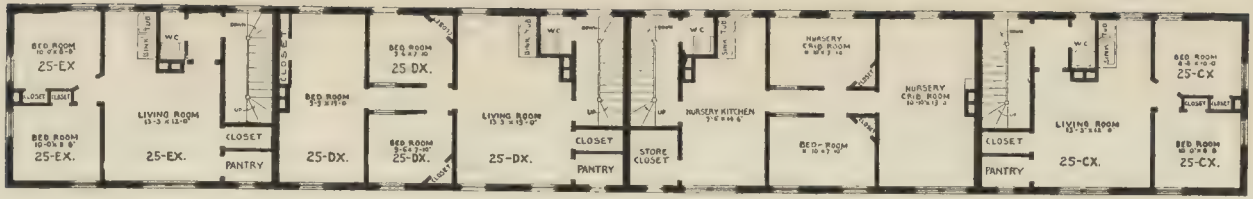
First floor.



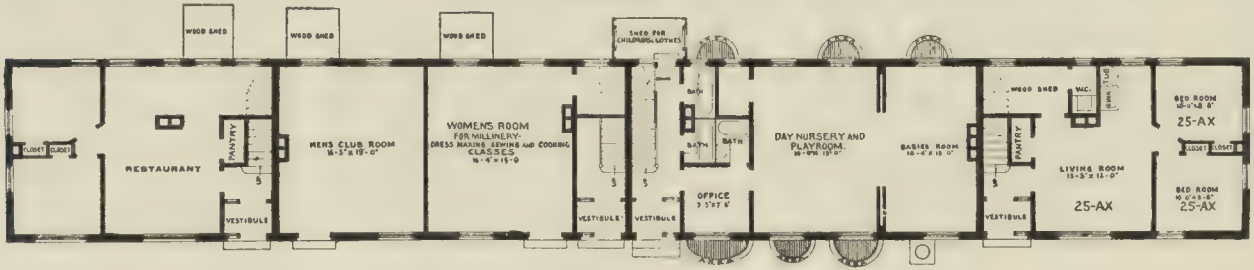
Basement.

BUNKER HILL TERRACES, BOSTON, MASSACHUSETTS.

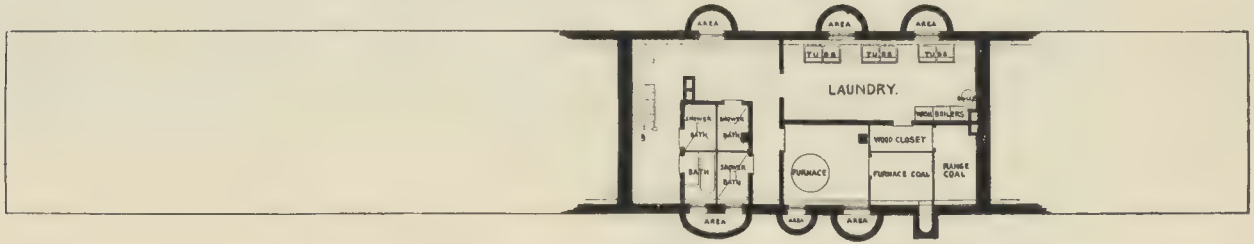
PLAN NO. 19 B.



Second floor



First floor.



Basement.

BUNKER HILL TERRACES, BOSTON, MASSACHUSETTS.--REAR BLOCK.

PLAN NO. 19 C.

sewer. An unlimited quantity of water will be allowed each tenement per day. Tenants will provide their own heating. Each of the forty-eight landings has an electric incandescent lamp. There is an electric arc lamp in the courtyard. No cooking range is provided by the proprietor. Fuel storage consists of a bin for each tenant in the cellar. Closed receptacles for ashes and garbage are placed in the courtyard. Every kitchen has a hanging wall table, an iron sink, a fixed washtub made of slate, a pantry, and a dresser. Nearly all the rooms have clothes-presses. There are no fireplaces, but every room is connected directly with a chimney. Molding for hanging pictures is fixed to the walls of living rooms and bedrooms. There are practically no other interior decorations worthy of mention, except a high wainscoting in the kitchen.

The exterior of the buildings presents a very plain appearance. Reference to the accompanying sketch and plans (plans Nos. 19 A, 19 B, and 19 C) will make clear the character of the buildings and the disposition of the different tenements.

The buildings contain in all 12 one-room tenements, 38 two-room tenements, 3 three-room tenements, and 15 four-room tenements. The size of one-room tenements is about 15 feet by 14 feet. In two-room tenements the size of the different rooms varies somewhat, the largest living room being 15 feet by 14 feet and the smallest 10 feet 10 inches by 14 feet 10 inches; the largest bedroom is 15 feet by 13 feet 5 inches and the smallest 8 feet by 14 feet. In three-room tenements the living room is 13 feet 3 inches by 12 feet and the bedrooms each 10 feet by 8 feet 8 inches. In four-room tenements, with one exception, the living rooms are 11 feet 1 inch by 14 feet 10 inches; the bedrooms are 8 feet by 14 feet 10 inches, 8 feet by 15 feet, and 11 feet 1 inch by 15 feet, respectively. The ceilings are 8 feet 9 inches throughout.

One-room tenements will rent at $1.40 and $1.50 per week; two-room tenements from $1.80 to $2.20 per week; three-room tenements at $2.75 per week; four-room tenements from $3.30 to $3.60 per week, with the exception of one smaller tenement of this kind, which will rent for $2.60.

Rents will be required to be paid weekly in advance at the office of the agent in the buildings. No form of lease will be required, but tenants will have to signify their acceptance of the regulations as a condition of tenancy.

The land was recently bought, and cost, approximately, $10,000. The cost of construction has been $90,000. The enterprise is entirely an individual undertaking. Mr. Tufts considers it a business venture, and expects to realize a net profit of about 6 per cent on his investment.

Social institutions will have their homes in the annex at the rear of the two main buildings. There will be, first of all, a restaurant in which plain meals will be served, and where food for families will be supplied at low prices. Second, a women's room, which will be devoted to the use of evening classes for teaching dressmaking, millinery, cooking, etc., under the superintendence of competent teachers. Small tuition fees

will be charged for each class. Free day and evening classes will also be organized for children of tenants. Third, a men's clubroom, which will be kept and maintained by its members, and will be used as a social resort for reading, smoking, and other legitimate purposes of rest and recreation. Membership will be restricted to persons of 18 years of age and upward. Small monthly fees will form the only resources. If found practicable, a summer adjunct to the clubroom will be arranged upon the roof of the building. Fourth, a day nursery, which will occupy six rooms, and is designed to take care of the children of women who are obliged to support their families by working outside their homes. Children from 6 months to 6 years of age will be received. The nursery will be open between 7 a. m. and 6 p. m. Children of proper age will be taken to the neighboring kindergarten and called for at the close of its sessions. Proper food will be given to the children, and they will have the care of a competent matron and her assistants. A daily fee of 5 cents will be charged for each child. The large double rooms on the lower floor, which in the daytime are to be used for nursery purposes, will in the evening be available for entertainments and social gatherings. Fifth, bathrooms, with shower and tub baths, are provided for men, women, and children. Men furnishing their own soap and towels will be asked to pay 10 cents, while women and children, with similar accessories, will need pay only 5 cents. It is difficult to see why this discrimination is to be made between sexes and ages as regards the price of a bath. If it is conceived that men work at occupations where they are more liable to become dirty, regard for hygiene would dictate the imposition of a very small fee, in order that frequent bathing might be encouraged. If it is conceived that the men earn more, and are consequently better able to pay for it, then bathing must be regarded as a luxury rather than as a necessary convenience. Sixth, a laundry, which is located in the basement and may be engaged by tenants for given hours each week. It is supplied with hot water and wash boilers. A fee of 5 cents for two hours, which will include fuel and boiler, will be charged.

GREAT BRITAIN.

IMPROVED INDUSTRIAL DWELLINGS COMPANY, LONDON.

This company, which has had such a long and honorable record, was founded through the efforts of Sir Sydney Waterlow, its present president. It houses probably a larger number of families than any other existing agency.

From its many properties the Marlborough buildings, Walton street, South Kensington, are selected for special description. The frontage of the lot upon which the model tenements have been constructed is about 130 feet and the depth about 290 feet. Upon this ground two

parallel rows of buildings, facing each other, have been constructed, each 240 feet long and about 40 feet deep. A space 40 feet wide separates these two rows. The center of this space forms a playground for children, where a row of trees has been planted. Seats are also arranged around the trees, and three gas lamps have been placed at intervals. This open space is partially paved with a mixture of tar, pitch, and stone. A narrow passageway also extends along the rear of each row of buildings. A garden 30 feet by 45 feet has been laid out at the end of the row. All open space is given up entirely to the free use of occupants, but no part of it is covered to serve as a recreation ground in rainy weather. The buildings are six stories high and built of brick. The roof is of asphalt, with an iron railing extending around it to prevent accidents. The staircases are 3 feet 1 inch wide, and are made of a mixture of cement, ashes, and cinders. The steps are grooved so as to prevent slipping. The sides are made of Portland cement and sand. The ground floor in one row of buildings is reached by going down a few steps from the front entrance, but is even with the ground at the back. This is the only thing approaching a basement which the buildings contain. The tenements are entirely self-contained, and a single door furnishes the entrance to the family lodgings. There are only two tenements opening upon each landing, so that independence and isolation of the individual family are well secured. Every room communicates directly with the open air. A register for ventilation has been placed above each fireplace. Transoms are found over all the doors. The windows in bedrooms are 5 feet 6 inches by 4 feet, and the doors are 6 feet 4 inches by 2 feet 5 inches. There are special flues for the ventilation of rooms. Besides these there is a soil pipe, carried several feet above the roof, and two sink pipes, also carried above the roof, for each section of the buildings. Water-closets are inside the lodgings, there being one for the sole use of each family. The system in use is an overhead flush tank. All soil pipes are placed outside the buildings, but water pipes are inside. The sewer is 18 inches below the surface at the foot of the buildings, and is placed to give a fall of 4 feet to the other end. There are three manholes. A flush pump or hydrant has been placed at each end of the row of buildings. Drain pipes are made of burr and cement. The laundries are situated on the roof, and in the ratio of one to each two staircases or twenty-four families. A laundry is provided with seven boilers and seven tubs. Clothes are dried on the roof, each house having a space of 15 feet by 21 feet to be used for this purpose. Back of the kitchen is the scullery, containing the water-closet, water sink, and a box large enough for half a ton of coal. above which is a cupboard of four shelves for china, provisions, etc., opening to the air. There is no heating of the halls; apartments are heated by means of ranges and grates, an iron grate being placed in each room where a range does not exist. The halls are lighted by the company, and the gas is turned out at 10:30 p. m.

Tenants in their own apartments may use either gas or oil. The disposition of tenements on a given landing is displayed in the accompanying plan (plan No. 20).

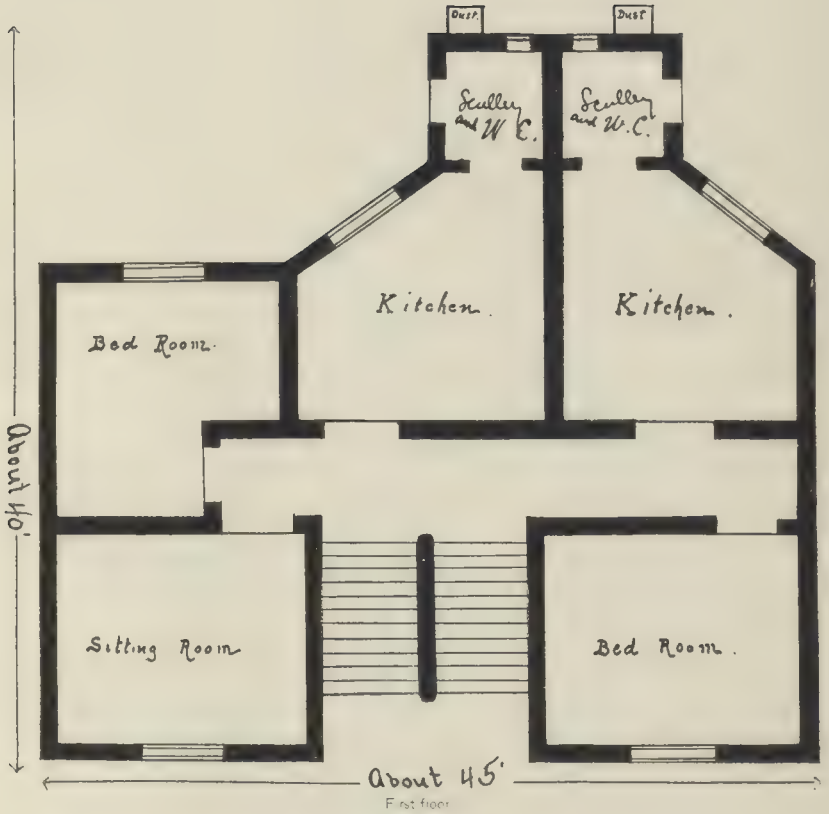
A cooking range, with large oven, two shelves for dishes, and cast-iron boiler, etc., has been placed in each kitchen. Animal and vegetable refuse must be burned, but dust shoots, which pass down at the back of each water-closet, receive the ashes and sweepings. The windows are arranged with a fixed and a sliding sash. The sliding sash is guarded by an iron bar, to prevent children from falling out. On the roof, behind each laundry, there are two water tanks, one for drinking water, holding 500 gallons, and a water-closet tank, holding 300 gallons. The interior of the apartments is always papered by the company, the tenants selecting their own designs. The external architectural features are quite pleasing. The entrances are in the shape of arched openings, with sides of yellow and brown glazed bricks and the archway of pointed red bricks. There are nine sets of bay windows in each building, alternating for two and three stories. Ornamental projections crown the top of the front wall and extend above the roof over each set of staircases.

The Marlborough buildings contain 12 two-room, 120 three-room, 24 four-room, and 6 five-room tenements. The average cubic contents of each two-room tenement is about 2,184 feet; of each three-room tenement, 3,510 feet; of each four-room tenement, 4,505 feet, and of each five-room tenement, 5,500 feet. The ceilings are 8 feet 6 inches in height throughout.

The Improved Industrial Dwellings Company aims to provide self-contained dwellings. It has standard architectural types, and chooses whichever one of these promises best to fit the configuration of selected building spaces. A general plan, a plan of one block of two-room dwellings, and a plan of one block of three-room dwellings on the Soho estate are shown in the accompanying sketches (plans Nos. 21 A, 21 B, and 21 C).

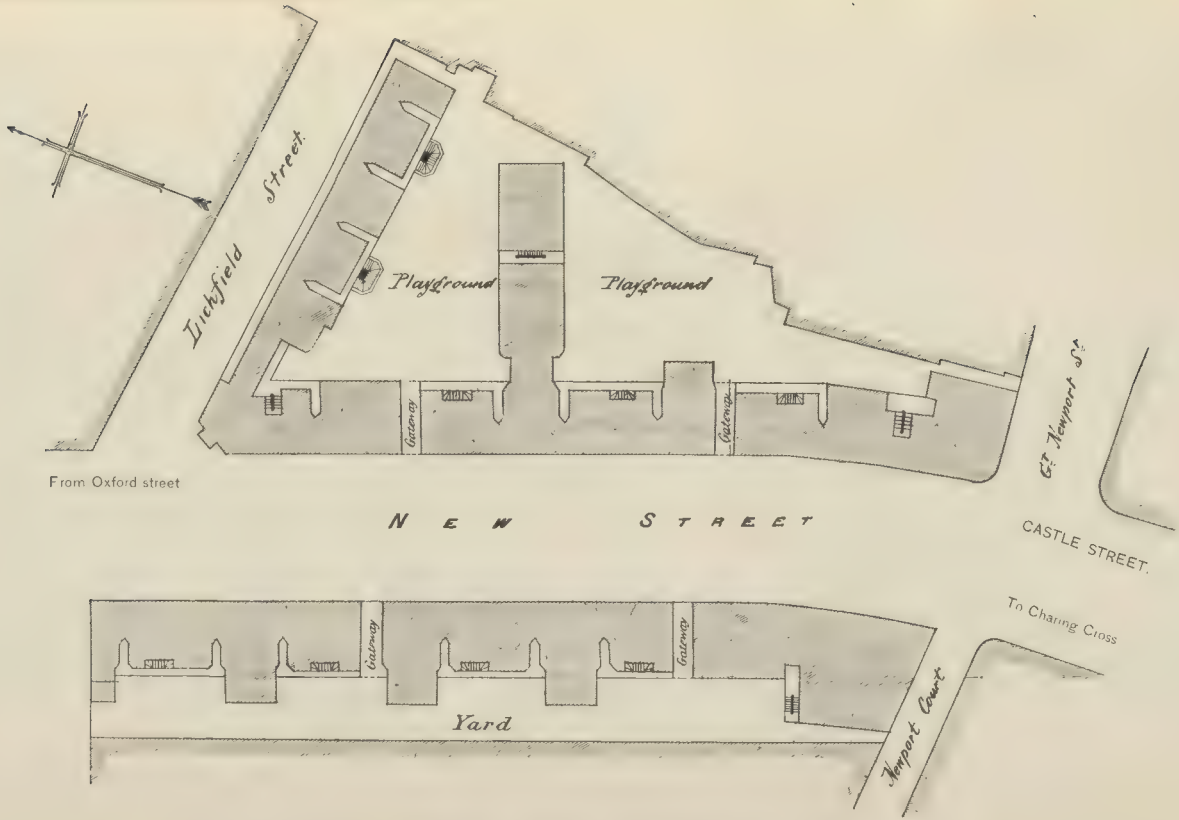
The report of this company for the fiscal year 1893 furnishes the information that the mortality returns for all of the company's buildings continue to show very favorable results. For the year ending June 30, 1893, the average death rate, according to returns received from the registrars of births and deaths, was only 11 per 1,000, including 3.1 of infants under one year of age; while, excepting a few cases of infantile diseases, as whooping cough, measles, etc., there were only 11 deaths from contagious or infectious diseases on the whole of the estates. The birth rate in the buildings averaged 31.6 per 1,000. The average death rate in the metropolis was 19.2 per 1,000, although in the low and very crowded districts it was probably between 30 and 40 per 1,000. The birth rate for the whole of London was 30.9 per 1,000.

Families having only two children are permitted to reside in two-room tenements, those having four children in three-room tenements, while for four and five room tenements no restrictions exist.



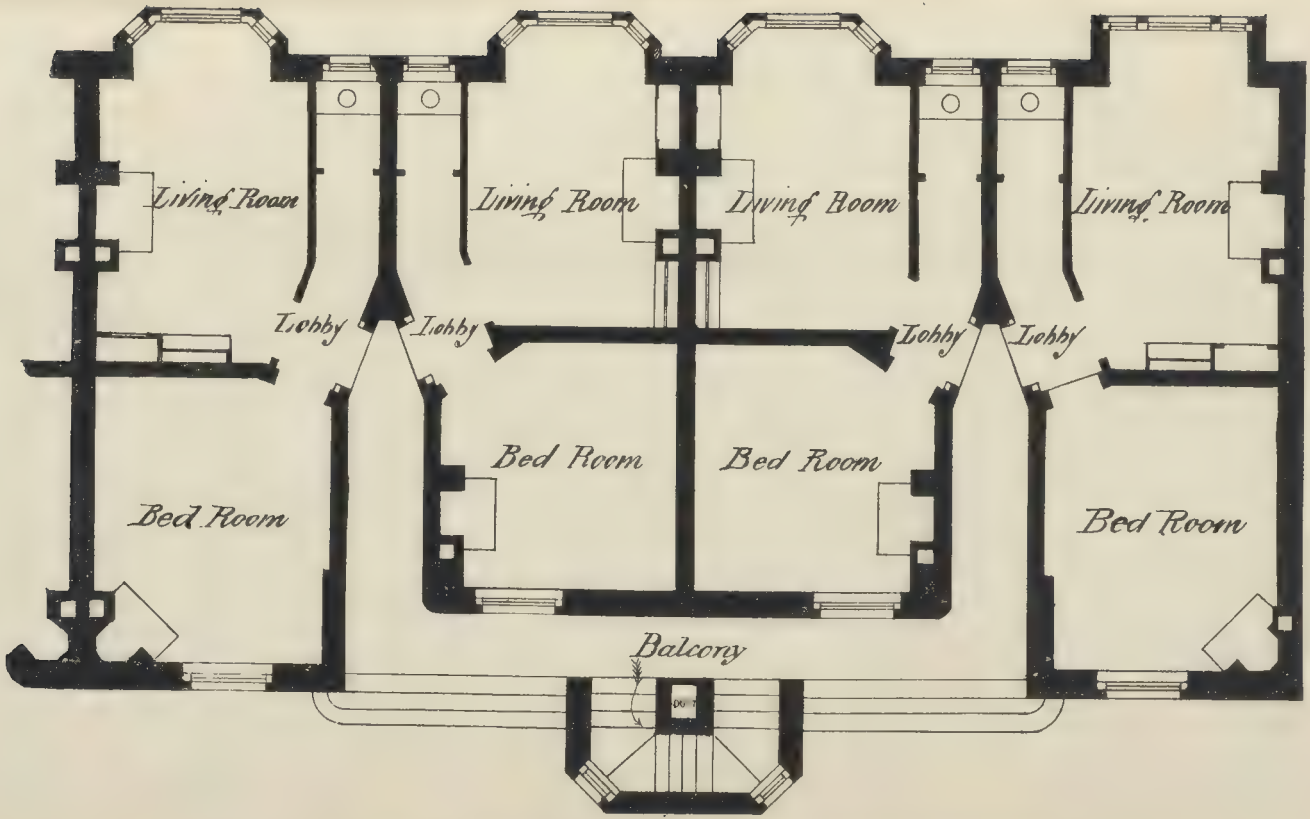
PART OF MARLBOROUGH BUILDINGS—IMPROVED INDUSTRIAL DWELLINGS COMPANY, LONDON, ENGLAND.

PLAN NO. 20.



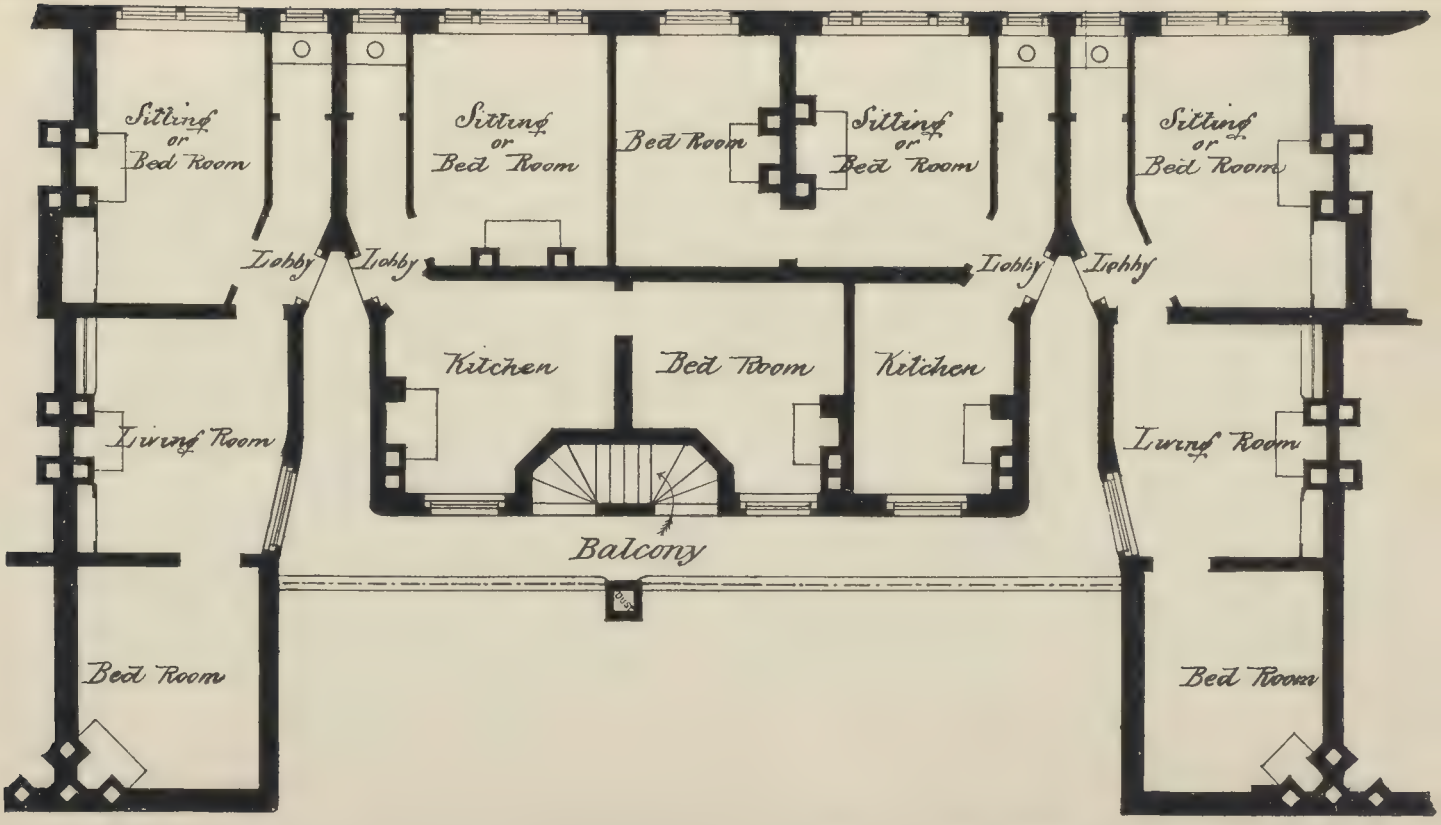
SOHO ESTATE OF THE IMPROVED INDUSTRIAL DWELLINGS COMPANY, LONDON, ENGLAND.

PLAN NO. 21 A.



SOHO ESTATE OF THE IMPROVED INDUSTRIAL DWELLINGS COMPANY, LONDON, ENGLAND TWO-ROOM DWELLINGS.

PLAN NO. 21 B.



SOHO ESTATE OF THE IMPROVED INDUSTRIAL DWELLINGS COMPANY, LONDON, ENGLAND THREE-ROOM DWELLINGS.

PLAN NO. 21 C.

The rents of two-room tenements in the Marlborough buildings range from 6s. 6d. to 7s. 3d. ($1.58 to $1.76) per week, according to the story on which the tenements are situated; three-room tenements from 8s. to 9s. 6d. ($1.95 to $2.31) per week; four-room tenements from 9s. 6d. to 12s. ($2.31 to $2.92) per week; five-room tenements from 11s. to 13s. ($2.68 to $3.16) per week.

The first model tenement built by the Improved Industrial Dwellings Company was opened for habitation in 1863. There are now 45 separate estates in the possession of the company. Nearly one-third of the property is located in East End, London. There are on all the estates 28 one-room, 374 two-room, 2,944 three-room, 1,676 four-room, 320 five-room, and 26 six-room tenements. The aggregate amounts to 5,368 separate tenements; and with 117 stores and 45 workshops represents a total of 18,862 rooms, for the accommodation of about 30,000 working people. The company owns, in addition, 14 freehold houses and shops on the Bethnal Green estate, and 3 leasehold shops and houses on King's Cross road. It owns, also, 8 freehold houses and cottages, and the freehold of land in Walton street and First street, South Kensington, on which are located 36 leasehold residences. The company also manages 414 dwellings belonging to private persons.

The company is a joint stock corporation with £500,000 ($2,433,250) share capital, and £105,000 ($510,982.50) in deferred shares. The rate of annual dividend paid for many years back has been 5 per cent. The total amount of reserve set aside up to the end of the last fiscal year was £173,601 8s. 7d. ($844,831.36). Of this £36,449 9s. 10d. ($177,381.45) has been spent on repairs. If we include the surplus, the average annual net profit for a number of years has exceeded 8 per cent. The borrowed capital amounts to £360,480 15s. 4d. ($1,754,279.65), and has been derived from a loan from the public works loan commissioners. The actual cost of freehold and leasehold estates has been £1,109,892 12s. 8d. ($5,401,292.50), and the total sum received for rent during the last fiscal year was £105,854 1s. 5d. ($515,138.84). The loss of rental resulting from unoccupied lodgings was comparatively small. Figures for the last fiscal year are not available, but during 1891 the percentage of "empties" in the East London houses amounted to about 7½ per cent, in West Central London to 3 per cent, and in West London to 1½ per cent. Rents are paid weekly in advance and are collected by agents from the office of the company. These officers are sent out with receipts, and they must bring back either the money or the receipt. There is, therefore, no possibilty of cheating. A tenant must give at least one week's notice in writing of intention to quit. One and one-half per cent upon the cost of construction goes annually to the repair fund. As new buildings do not need much repair there is always a large available credit balance on hand.

It is obvious that an annual census of occupations of tenants in the company's buildings would be a formidable task. The last one made

was in 1884, for a special report of the board of directors. This covered 3,915 tenants and represented 648 occupations. Practically the same class of people is housed now as at that time, except that in a few of the West End estates a slightly higher class is catered to. The following table is a copy of the list of occupations of tenants of the Improved Industrial Dwellings Company in 1884:

OCCUPATIONS OF TENANTS OF THE IMPROVED INDUSTRIAL DWELLINGS COMPANY.

Occupation.	Number.	Occupation.	Number.	Occupation.	Number.
Accountants	3	Card makers	2	Cow keeper	1
Account-book finisher	1	Caretakers	5	Curriers	2
Account-book maker	1	Carmen	112	Customs officers	6
Actors	7	Carpenters	67	Cutlers	5
Actresses	2	Carpenters and joiners	18	Dairymen	4
Agents	7	Carpenter's laborer	1	Decorators	7
Amalgamated society's officer	1	Carpet planners	4	Deliverymen	3
Annuitants	2	Carriage trimmer	1	Dentists	2
Artificial florists	2	Carvers	5	Detectives	3
Artists	3	Carvers and gilders	7	Die maker	1
Assistants	7	Case makers	7	Distillers men	2
Attendants	11	Cellarmen	14	Dockman	1
Bag makers	8	Chain makers	2	Doll draper	1
Bagman	1	Chair makers	9	Doorkeeper	1
Bailiff	1	Chandelier maker	1	Draftsmen	4
Bakers	26	Charwomen	14	Drapers' assistants	7
Band sawyer	1	Checkers	6	Draymen	6
Bark sorter	1	Cheesemongers assistants	8	Dressing case liner	1
Barmen	4	Chemical stopperer	1	Dressmakers	26
Barometer makers	2	Choristers	2	Drillers	2
Basket makers	3	Chronometer maker	1	Druggists' assistants	4
Bass dresser	1	Cigar makers	9	Drug grinders	3
Bath keeper	1	Cigarette makers	2	Dyers	2
Bath maker	1	Cigar sorter	1	Easy chair maker	1
Beadle	1	Cleaners	3	Egg factor	1
Beer retailer	1	Clerks	123	Electricians	2
Bellows maker	1	Clickers	14	Electroplate polisher	1
Bible woman	1	Clock-dial maker	1	Electroplater	1
Bicycle makers	3	Clock makers	2	Electrotyper	1
Billiard marker	1	Clothes cutters	4	Embossers	2
Blacksmiths	8	Cloth presser	1	Embroiderer	1
Blind cord maker	1	Club superintendents	2	Enameler	1
Blind makers	3	Coach builder	1	Engine drivers	20
Boat builder	1	Coach makers	12	Engineers (working)	56
Boatman	1	Coach painters	8	Engine turner	1
Boatswains	2	Coach smiths	4	Engravers	5
Boiler makers	6	Coachmen	25	Envelope cutter	1
Bonnet blocker	1	Coal dealers	2	Epaulet maker	1
Bookbinders	45	Coal marker	1	Fancy-box maker	1
Book collectors	4	Cocoa makers	4	Fancy cutler	1
Book edge gilders	3	Coffee-house keepers	2	Fancy dealer	1
Booksellers' assistants	7	Coffee roaster	1	Farriers	14
Boot closers	5	Collar cutters	3	Feather makers	2
Boot finishers	23	Collar ironer	1	Fellowship porter	1
Boot lasters	9	Collectors	1	Filter maker	1
Bootmakers	35	Color maker	1	Firemen	10
Boot riveter	1	Colorman	1	Fishing-tackle makers	2
Bottle maker	1	Color mixer	1	Fishermen	2
Bottle merchants	2	Comedians	3	Fishmongers	6
Bottler	1	Commercial travelers	31	Fitters	18
Box-office keeper	1	Commissionaries	41	Floor-cloth maker	1
Box makers	5	Commission agents	2	Florist	1
Box mounter	1	Compass maker	1	Foremen	31
Brass finishers	22	Compositors	62	Forewomen	2
Brass molders	4	Conductors	7	Foundrymen	1
Brass workers	2	Confectioners	5	Frame makers	3
Brewers' servants	12	Confectioners' assistants	2	French polishers	21
Bricklayers	36	Cooks	33	French teacher	1
Brush makers	14	Coopers	19	Fret cutter	1
Butchers	32	Coppersmith	1	Fringe makers	2
Buttermen	2	Cordwainers	5	Fruiterers	4
Butlers	52	Core maker	1	Fur sewer	1
Cab drivers	69	Cork cutter	1	Furriers	10
Cabinetmakers	72	Cork sorters	3	Ganger	1
Camp stool maker	1	Corn dealer	1	Gardeners	2
Canvas cutters	2	Costume cutter	1	Gasengineer	1
		Costume maker	1	Gas fitters	11

OCCUPATIONS OF TENANTS OF THE IMPROVED INDUSTRIAL DWELLINGS COMPANY—Continued.

Occupation.	Number.	Occupation.	Number.	Occupation.	Number.
Gasman	1	Locksmiths	3	Police inspectors	15
Gas regulator	1	Machine makers	2	Police sergeants	26
Gate porters	3	Machine minders	4	Porpoise-lace maker	1
General dealers	12	Machine printer	1	Porters	181
Gilders	2	Machine rulers	3	Portmanteau makers	3
Glass bender	1	Machinists	17	Postmaster, local	1
Glass blowers	3	Mail porters	3	Potmen	2
Glass cutters	7	Malt roaster	1	Poulterers assistants	2
Glass engravers	2	Managers	18	Press reader	1
Glass maker	1	Manglers	6	Printers	86
Glass painter	1	Mangle women	3	Printers' cutters	2
Glazier	1	Mantle makers	4	Printer's joiner	1
Gold beaters	3	Map colorers	2	Printers' readers	3
Gold burnisher	1	Map mounters	3	Printer's overseer	1
Gold chain maker	1	Marble masons	3	Property man	1
Goldsmiths	4	Marble polisher	1	Railway-goods receiver	1
Gold worker	1	Masons	5	Railway guards	4
Grainers	4	Mattress maker	1	Railway servants	7
Grinders	2	Medical rubber	1	Railway signalmen	5
Grocers' assistants	6	Messengers	42	Registrar of births and deaths	1
Grooms	6	Metal polisher	1	Rigger	1
Gun makers	2	Metal rollers	3	Rivetter	1
Habit maker	1	Meter maker	1	Roadsman	1
Hairdressers	9	Microscope maker	1	Rope maker	1
Hallporters	2	Milkmen	4	Sack maker	1
Hammermen	4	Millmers	8	Saddlers	15
Handyman	1	Mill-band makers	2	Safe maker	1
Harness makers	9	Millers	5	Salesmen	20
Hatters	10	Millstone builder	1	Salvage man	1
Heraldic embosser	1	Millwrights	2	Sash-line makers	2
Hop samplers	2	Mineral water manufacturers	3	Saw maker	1
Horse-collar makers	3	Minister	1	Sawyers	8
Horsekeepers	18	Missionaries	9	Scaffolders	3
Hostlers	5	Mission woman	1	Scale makers	3
Hotel manager	1	Money takers	2	Schoolmasters	4
Housekeepers	10	Molders	7	Schoolmistress	1
Hydrometer makers	2	Museum attendant	1	Scripture readers	3
Infant robe maker	1	Musical-instrument maker	1	Scullery man	1
Ink maker	1	Musicians	14	Sealing-wax maker	1
Instrument makers	2	Mustard makers	2	Seal jacket finisher	1
Iron founder	1	Needlewoman	13	Sealskin dressers	5
Ironmongers' assistants	3	Netter	1	Seamen	6
Iron molders	9	News agent	1	Sergeant instructor	1
Iron workers	2	Nurses	9	Sergeant, R. M	1
Ivory workers	5	Oil-cloth cleaners	7	Servants	23
Jailer	1	Oil dealer	1	Shape maker	1
Japanners	4	Omnibus drivers	12	Sheriffs' officers	2
Jet worker	1	Optical turners	2	Ship lamp maker	1
Jewel case liners	3	Opticians	4	Ship stewards	3
Jewelers' assistants	5	Overlooker	1	Shipwright	1
Jewelers (working)	15	Overseer	1	Shipwrights	3
Joiners	23	Packers	53	Shirt cutter	1
Journalist	1	Packing case makers	5	Shirt maker	1
Justifier	1	Painters	26	Shoemakers	18
Laborers	73	Painters and decorators	6	Shopmen	14
Lace maker	1	Paper compresser	1	Shorthand writer	1
Lamplighters	2	Paper hangers	6	Shunter	1
Lamp makers	2	Pasteboard maker	1	Sign writers	4
Lapidary	1	Pattern makers	3	Silk dresser	1
Last maker	1	Pawnbroker's assistant	1	Silk winders	2
Laundresses	26	Pen maker	1	Silver chasers	4
Law stationers	2	Pensioners	22	Silver mounter	1
Law writers	2	Perfumers	3	Silver polishers	3
Leather-case makers	2	Pew opener	1	Silversmiths (working)	12
Leather cutters	8	Pewterers	4	Sister of charity	1
Leather dipper	1	Photographer	1	Skin dressers	5
Leather dressers	5	Pianoforte makers	4	Slaters	2
Leather dryer	1	Pianoforte tuners	2	Slipper binders	2
Leather-lace maker	1	Picture-frame maker	1	Slipper makers	3
Leather shaver	1	Pier-head man	1	Smiths (various)	14
Leather worker	1	Pipe makers	2	Soap cutter	1
Letter carriers	52	Plasterers	3	Soap maker	1
Letter sorters	18	Platelayers	4	Soldiers	4
Letterpress printer	1	Platemen (hotel)	2	Sponge trimmer	1
Lift man	1	Plate polisher	1	Spring maker	1
Lightermen	9	Plumbers	14	Stablemen	5
Lithographers	9	Pocketbook makers	2	Stamper (G. P. O.)	1
Loader	1	Police constables	200	Stationers' assistants	10
Loam grinder	1			Steam raiser	1
Lockman	1				

OCCUPATIONS OF TENANTS OF THE IMPROVED INDUSTRIAL DWELLINGS COMPANY—Concluded.

Occupation.	Number.	Occupation.	Number.	Occupation.	Number.
Stereotype founder	1	Tie makers	11	Viewers	2
Stereotypers	2	Timber agent	1	Vocalist	1
Stevedores	7	Timekeepers	12	Waistcoat maker	1
Stewardess	1	Tin-plate workers	16	Waiters	31
Stewards	3	Tobacconists	2	Warders	14
Stick bender	1	Tool finisher	1	Warehousemen	79
Stick dressers	5	Toy maker	1	Waste-paper dealer	1
Stick makers	4	Tracer	1	Watch-dial maker	1
Stillman	1	Tram-car conductor	1	Watchmakers	6
Stock keeper	1	Trimmers	2	Watch-motion maker	1
Stokers	8	Trimming maker	1	Watchmen	11
Stone masons	8	Tripe dresser	1	Water examiner	1
Storekeepers	11	Trunk maker	1	Waterman	1
Straw workers	2	Turn cocks	2	Weavers	2
Sugar refiners	4	Turners	7	Wire flatter	1
Surgical-instrument maker	1	Twine spinner	1	Wire weavers	4
Tailoresses	13	Type founders	7	Wire-workers	3
Tailors	59	Umbrella makers	7	Wharf manager	1
Tailor cutters	3	Undertakers' assistants	2	Wheeler	1
Tallow chandlers	2	Upholsterers	23	Wheelwrights	8
Tanners	3	Upholsterers, female	6	Whip makers	3
Tea blender	1	Valets	6	Wood carvers	6
Teachers	2	Vat makers	3	Wood chopper	1
Telegraphists	3	Vellum binders	3	Wood engraver	1
Telegraphic mechanic	1	Veneer salesman	1	Wood turners	5
Ticket collector	1	Vest makers	4	Writers	4
Ticket examiner	1	Viceman	1	Yardman	1
		Victualers	5	Zinc worker	1

About 17 per cent of the earnings of tenants of the company's buildings, it is believed, is paid for rent. Subletting is permitted, with the approval of the chief collector. If such regulations were not made the company believes it would be impossible to prevent overcrowding. In the form of application required of prospective tenants they state the number of rooms required, their choice of building, the date when occupancy will commence, and promise to comply in every respect with the conditions of occupation as printed on the reverse side of the application. The prospective tenant also promises to pay 6d. (12 cents) per week toward the general expenses of the estate, which sum he authorizes the corporation to collect and recover in the same manner as the rent of the dwelling. He then inscribes his name in full, his occupation, his address, how long he has been resident there, the rent he has paid for his dwelling, whether married, widower, or widow, the name and address of his employer, the number of male and female children above the age of 20 years, between 12 and 20 years, and under 12 years. The conditions of occupancy are:

1. The tenancy to be weekly, and rents to be paid and kept paid a week in advance.

2. In addition to and apart from the rent a deposit of 5s. ($1.22) to be paid by way of security for the proper use of fixtures, etc. This is to be returned on the termination of the tenancy, subject to proper deductions for breakages, loss of keys, or damages to premises of any kind in excess of fair wear and tear. The decision of the secretary as to the amount of the deduction to be final and conclusive.

3. If gas is provided the charge for the same is to be paid weekly with the rent, and to be recoverable from the tenant as rent. Gas is to be used solely for lighting during reasonable hours.

4. Broken windows to be repaired by the company, and the cost charged to and recovered from the tenant as extra rent. The chimneys to be swept at the expense of the tenant, by persons appointed by the company, on application to the porter.

5. The stairs, passages, and balconies to be swept daily during the week, and washed on Saturday by the tenants of each floor in the order of the numbers of the tenements.

6. The company to be at liberty, by their agents or workmen, to enter and inspect the state of repair of every dwelling at all reasonable hours of the day, and to remove any fixtures therefrom for repair or otherwise.

7. No tenant to underlet any of the rooms in his occupation unless he shall first obtain the permission of the chief collector in writing.

8. Notice to quit by tenant to be given to the porter in writing, to be delivered by him to the secretary at least a week before it is intended to terminate the tenancy.

The resident agents in the buildings are, as a rule, pensioners or ex-policemen. Their duties are to supervise generally the buildings and look after the comfort of tenants. They neither let the rooms nor collect the rents. They only give out the forms which are to be filled.

The company does all of its own building, buying its materials for cash and paying directly for its own labor. It employs a large force of men continuously in making necessary repairs. There is no architect in the employ of the company.

It seems to be the policy of the corporation not to build much more, at least for a time, in East London, the percentage of vacancies indicating that there is not a sufficient demand to justify further activity. More recently the operations have been chiefly exercised in the western part of the city, where some exceedingly handsome and admirable structures from every point of view have been built, in some cases in the immediate vicinity of some of the most fashionable squares of London. The price of land is the chief difficulty which the company is experiencing everywhere in extending its operations. The magnanimity of such large landlords as the Duke of Westminster, the Marquis of Northampton, and the Earl of Cadogan in leasing the land at an exceedingly moderate rental, has alone made work in this direction possible.

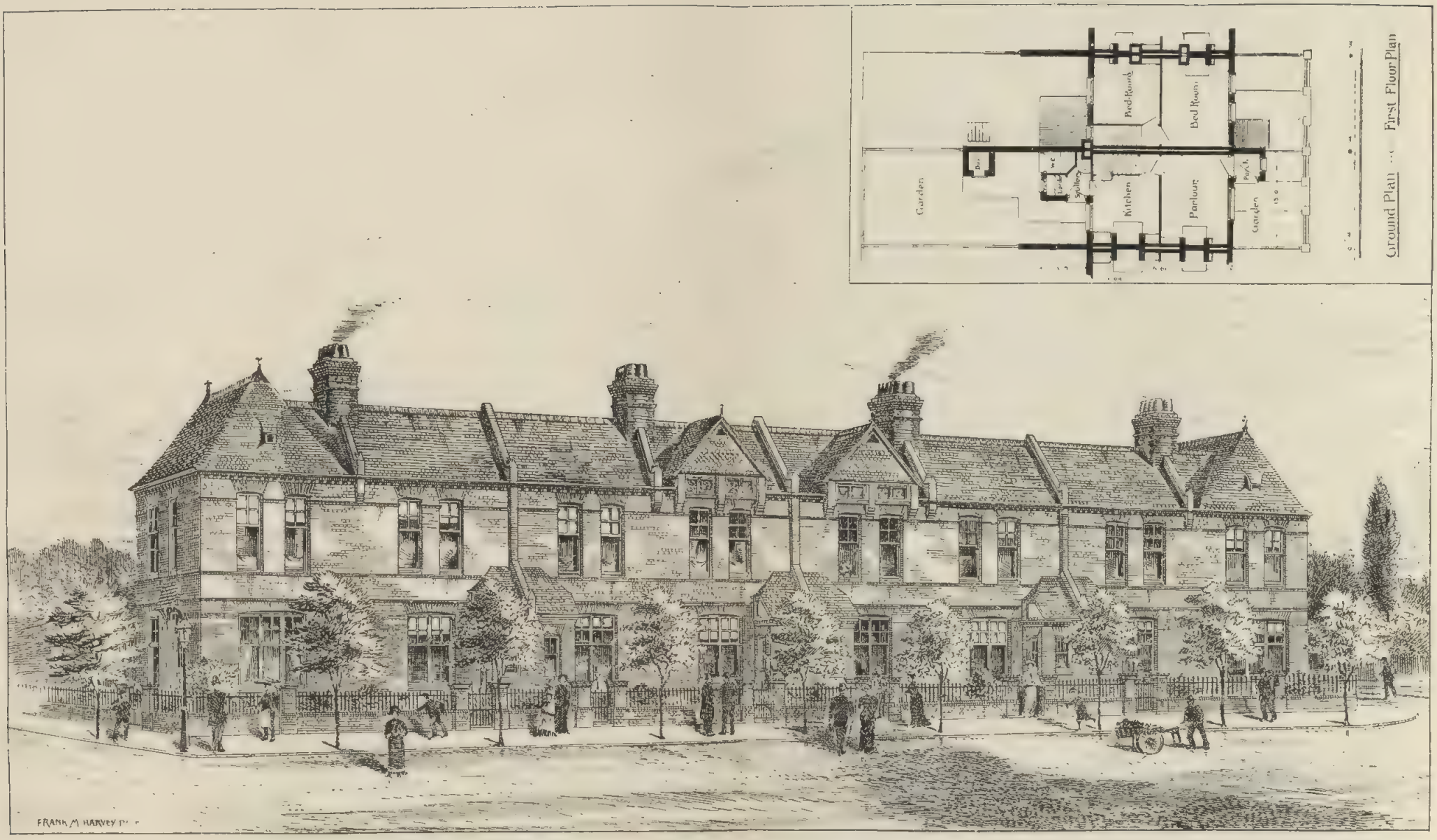
The Improved Industrial Dwellings Company is a purely commercial organization. It has done nothing directly for the sake of philanthropy, though indirectly the most important philanthropic results have been reached. The aim of the president, Sir Sydney Waterlow, a veteran in this field of social labor, has been to pay a 5 per cent dividend annually and to carry a sufficiently large sum to the reserve account. The company caters to the artisan rather than to the laborer, but in the view of Sir Sydney Waterlow and Mr. Moore, the secretary, this is not only a perfectly legitimate but useful thing to do, in that those who are capable of paying higher rentals, when induced to leave their old surroundings and come into model, self-contained dwellings, leave their former residences for the class below them. Beginning at the

top, results in improvement, both sanitary and ethical, all along the line. The prime feature of the enterprise has been to secure the independence and isolation of the individual family to as great a degree as possible. With this end in view, two living apartments only are entered from the same landing. The measure of appreciation which has been meted out to the corporation for its useful efforts has perhaps been best expressed by Mr. Powell, speaking as the delegate of sixty-eight trade societies, in his evidence before a select committee of the House of Commons, when he stated that the blocks built by the Improved Industrial Dwellings Company "are probably among the best examples of how taste and convenience and privacy of home may be secured in the block system, in perhaps even greater degree than in the ordinary dwellings of the industrial classes."

ARTISANS', LABORERS' AND GENERAL DWELLINGS COMPANY, LONDON.

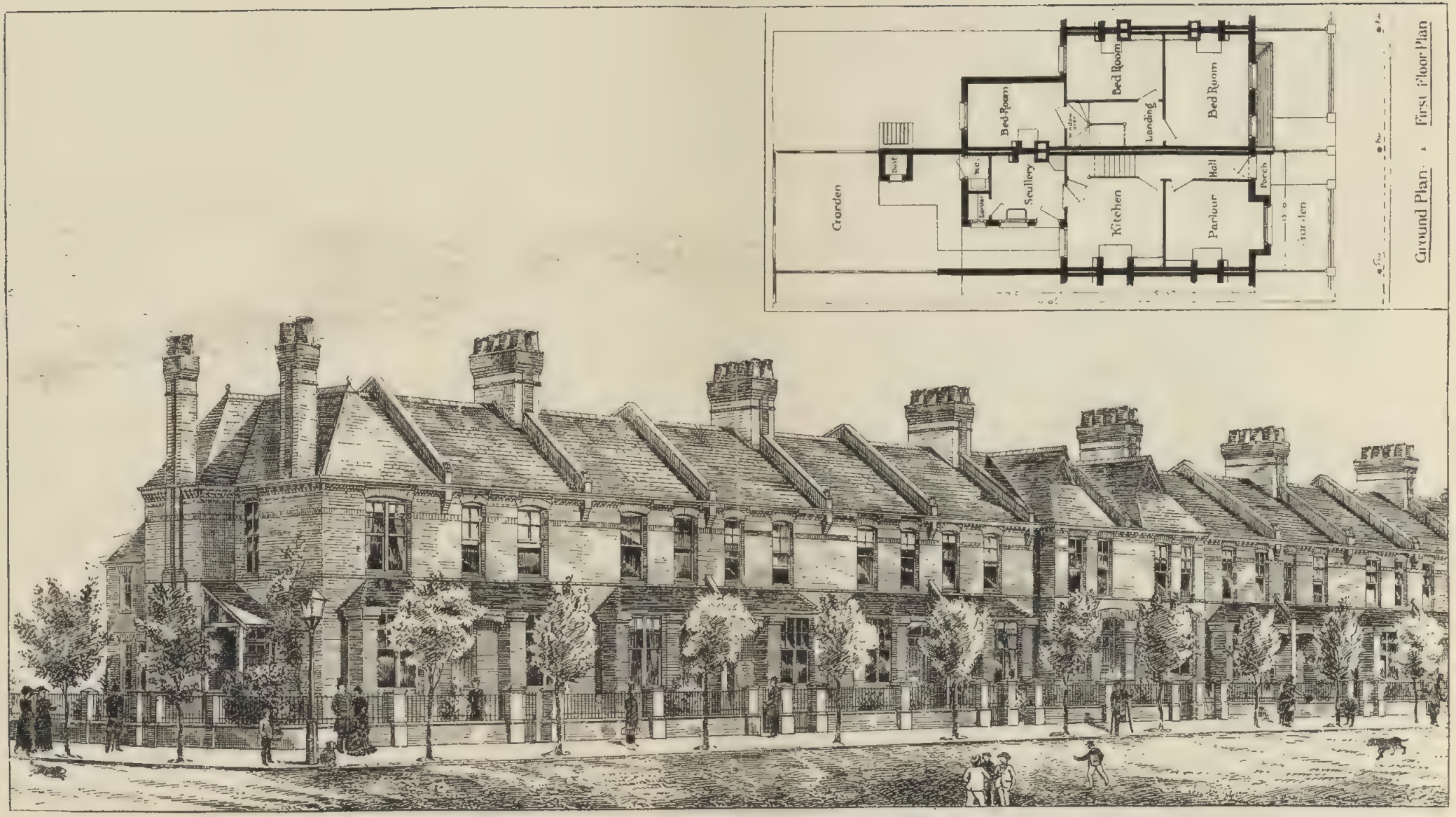
This company originated, in 1867, by a few workingmen banding together to build dwellings for their fellows. The nominal capital was originally £250,000 ($1,216,625), in 25,000 shares of £10 ($48.67) each, but the undertaking being successful it grew very rapidly, and the shares were soon taken up as the building operations were extended. In 1874 the capital was by special resolution increased to £1,000,000 ($4,866,500), and again, in 1879, to £1,250,000 ($6,083,125), by the emission of £250,000 ($1,216,625) preferred shares bearing a noncumulative preferential dividend of 4½ per cent. The total amount of existing share capital is £2,117,230 ($10,303,499.80). There are no mortgages or debentures of any kind. The total amount set aside for reserve up to the end of the last fiscal year was £123,784 ($602,394.84). For the last twelve years a dividend of 5 per cent, free of income tax, has been paid annually on common stock.

Until 1886 this corporation occupied itself entirely with the development of immense suburban estates. The building of small houses, which originally were intended to be sold to occupants on ninety-nine year leases, represented the only kind of activity. Since that time ten block buildings, four of them situated in the eastern central, five of them in the west, and one in the northwestern district of London, have been built for habitation. These buildings contain in all 1,467 tenements, comprising 3,495 rooms. They also include 148 shops. The suburban estates are (1) Shaftesbury Park, Battersea, Southwest London, comprising 42½ acres, upon which 1,198 houses and one block of 22 tenements have been built; (2) Queen's Park, Harrow Road, West London, containing 76 acres, upon which there have been constructed 2,297 houses; (3) Noel Park, Wood Green, North London, which is not yet fully developed, containing 100 acres, upon which 1,305 houses have so far been built; (4) Leigham Court, Streatham, Southwest London, containing 66 acres, now being built upon. The delay in the development of



HORNSEY ESTATE OF THE ARTISANS', LABORERS' AND GENERAL DWELLINGS COMPANY, LONDON, ENGLAND—FIFTH-CLASS HOUSES.

PLAN NO. 22.



HORNSEY ESTATE OF THE ARTISANS', LABORERS' AND GENERAL DWELLINGS COMPANY, LONDON, ENGLAND · THIRD-CLASS HOUSES.

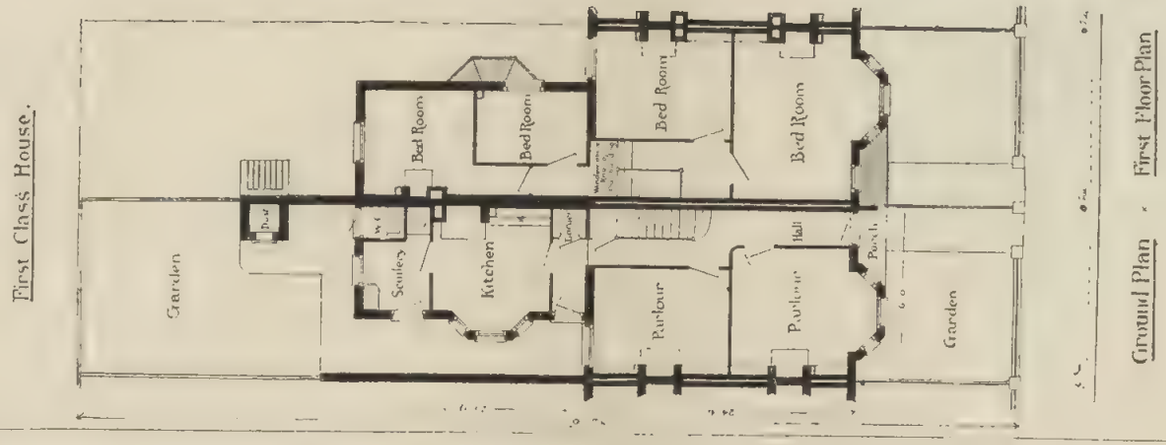
PLAN NO. 23.



HORNSEY ESTATE OF THE ARTISANS', LABORERS' AND GENERAL DWELLINGS COMPANY, LONDON, ENGLAND—SECOND-CLASS HOUSES.

PLAN NO. 24.





HORNSEY ESTATE OF THE ARTISANS', LABORERS' AND GENERAL DWELLINGS COMPANY, LONDON, ENGLAND—FIRST-CLASS HOUSES.

PLAN NO. 25.

the Noel Park estate, the directors believe, has been materially due to the indisposition of the Great Eastern Railway Company to provide on this branch those facilities for the cheap travel of working people which exist on other parts of their suburban system. In addition to the properties named this company has provincial estates, the income from which during the last fiscal year was £1,961 0s. 11d. ($9,543.43). The total income of the corporation during the last fiscal year was £150,697 18s. 3d. ($733,371.39). The provincial estates are situated in Liverpool, Salford, Birmingham, and Smethwick. They are valued in the inventory at £28,464 19s. ($138,524.68). The company's entire property amounts in value to £2,407,621 11s. 8d. ($11,716,690.44). Ordinary shares have been for some time issued at a premium of £1 ($4.87) for every £10 ($48.67) share. Preferred shares command a premium of £1 5s. ($6.08) per £10 ($48.67) share. When new estates are developed, instead of borrowing money new capital is issued, and as a rule the shares are subscribed for by shareholders and their friends.

In developing a suburban estate the company first selects a freehold site of from 40 to 100 acres, upon which it commences building operations, after having carefully planned the most desirable dispositions for roads and avenues. Opportunities for architectural effect are necessarily limited, because all the houses are intended to command a comparatively low rental, but anyone visiting either of the three principal estates will see that depressing uniformity of appearance has been avoided and that a great deal in the way of tasteful architectural effect has been achieved. A variety of elevation particularly is aimed at, and some simple architectural effect is usually introduced at the center of terraces and in corner houses. The greater expenditure involved in this style of treatment is usually made up by the extra space in the projections, which permits the rental of such houses at an enhanced price.

The company has classified its suburban cottages into five general categories. The corner houses and shops with dwelling accommodations are not included. Originally there were but four classes, but the great demand for smaller houses furnished an inducement to build cottages at still lower rentals. A fifth-class house (plan No. 22) contains two bedrooms, a parlor, a kitchen, and a scullery, and rents for 6s. ($1.46) per week. A fourth-class house has the same number of rooms, only they are larger. The rental for it is 7s. 6d. ($1.83) per week. A third-class house (plan No. 23) contains three bedrooms instead of two, and a much larger scullery. It rents for 9s. ($2.19) per week. In a second-class house (plan No. 24) there are three bed-rooms upstairs, as in the third-class houses, and on the ground floor a parlor, a kitchen, and a third room, which may be used either as a bed-room or sitting room. The rental is 10s. ($2.43) per week. A first-class house (plan No. 25) contains eight rooms—four bedrooms, two parlors, a kitchen, and a scullery. The rental is 11s. 6d. ($2.80) per week. These charges include all rates and taxes.

Special care has been taken with drainage, ventilation, and water supply, and the houses have been constructed with every sanitary precaution. Every house has been built on a layer of concrete, covering the entire area; the walls are all damp-coursed, and party walls are thicker than is usual. The timber and other materials employed are of the best quality. No sewers pass under the houses; the drains are properly trapped and the sinks disconnected, discharging over open-air trap gullies. Special ventilation of each room has also been successfully accomplished. The roadmaking and paving has been excellently done, and the streets are planted on each side with trees. On all of the estates attempts have been made to elevate the tone of the inhabitants. Garden cultivation is especially encouraged by awarding prizes at flower shows for the best kept gardens and for household plants. Each house has a small plot of ground both in front and at the back. A literary institute has been opened at Shaftesbury Park, and on the Queen's Park estate a club, library, and recreation building has been provided. Liquor in any form is not allowed to be sold on any of the estates.

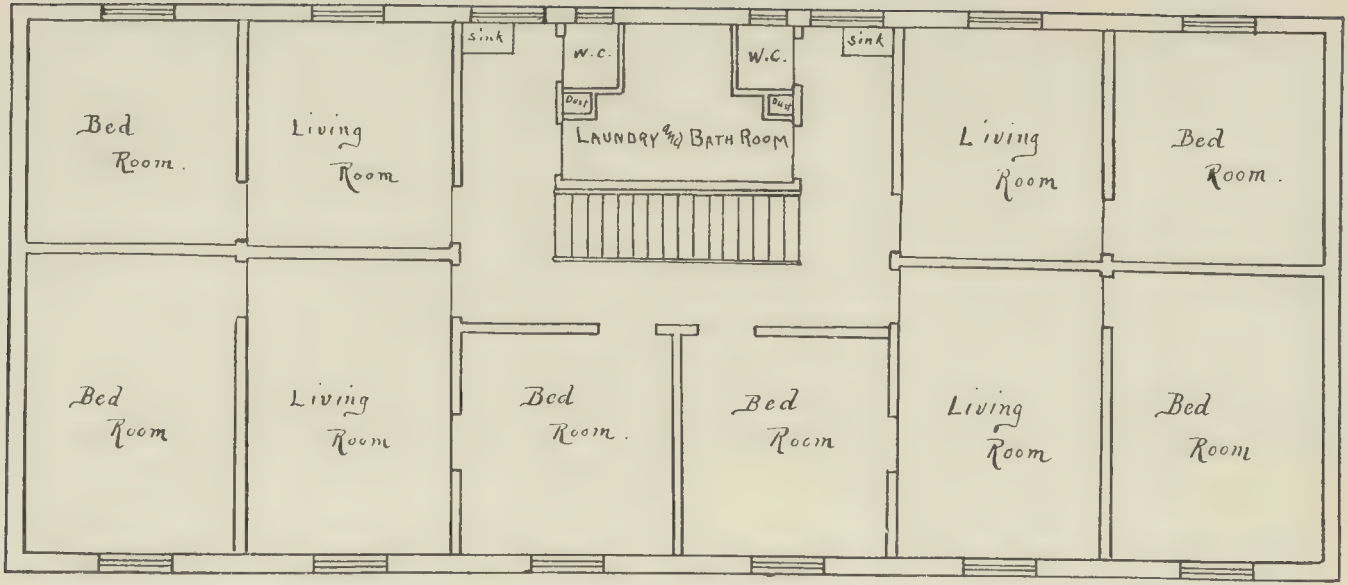
A census of occupants of the Queen's Park estate was made in June, 1884, for submission to the royal commission on the housing of the working classes. This list showed that 34 heads of families were bakers and butchers, 42 boot and shoe makers, 53 bricklayers and masons, 87 carpenters, joiners, and cabinetmakers, 43 cabmen and coachmen, 90 clerks and warehousemen, 182 laborers, 42 letter carriers and messengers, 73 painters and decorators, 156 railway employees, 48 store clerks, 34 tailors, 25 commercial travelers, 27 policemen, and 74 were engaged in miscellaneous pursuits. The general character of the inhabitants has not changed greatly since, and probably these are representative of the present population. Tenants are permitted to sublet or receive boarders.

The company has discontinued the original scheme of selling the houses on ninety-nine-year leases, thus making tenants proprietors. The reasons for this are:

1. That the practice damaged the property in the eyes of investors, because of the company losing control of the entire administration. The company was thus crippled in seeking to obtain capital which was very necessary for furthering its enterprises.

2. The company could not well prevent overcrowding, or even the establishment of immoral houses in the neighborhood.

3. These houses very largely fell into the hands of middlemen, who rented them about 15 per cent higher than the previous rates. The original purchaser nearly always sold out at a profit to one of these men when, for any reason, such as change of working locality, he found it convenient to live in another section of London. Consequently the middleman was justified in charging higher rent, because he had to pay more for the house.



ARRANGEMENT OF STAIRWAY AND ROOMS IN A BLOCK OF THE ARTISANS', LABORERS' AND GENERAL DWELLINGS COMPANY, LONDON, ENGLAND.

PLAN NO. 26.

This system was abolished in 1879, but up to that time, on two estates where it had been brought into practice, 335 houses out of a total of 3,381 had been sold on leaseholds for deferred payments. The company's plan has been to buy back all of the houses sold, and it has succeeded in doing so in a great many instances.

The Artisans', Laborers' and General Dwellings Company, in its block buildings, caters to a lower class of laboring people than some of the other housing corporations. In order to be able to reduce rentals within measurable limits for such people, rather more space on lots has been built upon than is usual with really model blocks. A very fair provision of open space, however, remains everywhere. The buildings are solidly constructed, as a rule, of brick, and an interesting feature is the use of glazed brick of different colors in the hallways and corridors. The roofing material is usually of asphalt. The staircases are generally situated in the middle of the building, and from each landing 2 single-room and 4 two-room tenements, or 2 two-room and 2 three-room tenements have their entries.

The accompanying plan (plan No. 26) was prepared simply from a mental sketch given by Mr. Farrant, the deputy chairman and managing director of the company, for the purpose of showing relative position of staircase and tenements. No attempt was made at accuracy of dimensions.

Two water-closets, two sinks, two dust shoots, and a laundry are placed on each landing. This staircase is the prevailing type, because with its use 1,000 people per acre may be safely housed and an outlay of about 5 per cent thereby saved. The staircase is lighted by a rear window and by a skylight above. The cubic space of the corridor and staircase is all in one. Where more than four families use a staircase on a given floor, a corridor is placed between the front and rear tenements.

The block buildings of the company are usually five or six stories high. Special arrangements have been made to make them absolutely fireproof. The staircases are of stone and 9 feet wide. Under the floors Portland cement and coke breeze, 6½ inches thick, fill the space between the iron girders. The flooring material is of blocks of Baltic yellow deal, 3 inches square, laid on this concrete with pitch. The roof is of French asphalt, as already stated. The halls are wide and well lighted, and are lined throughout with glazed brick. Two gaslights have been placed on each landing in such a manner that they may light the passage to the water-closets. Each vertical set of closets is supplied by a tank containing 500 gallons, and each set of sinks, with tap for domestic supply, including the laundry, has a 2,000-gallon tank at the top of the building. The drinking water is entirely separate from these. The laundry, baths, closets, sinks, etc., are arranged so as to focus the whole drainage system and detach it completely from the dwelling apartments. Soil pipes are ventilated at the top. The

arrangements for ventilation are very good. Every bedroom has one window and every kitchen two windows, 5 feet by 2 feet 6 inches, and there are transoms above all the doors. On each floor there has been placed a commodious laundry, 19 feet square, with boiler, two wash-tubs with glazed stone lining and teak wood top, provided with hot and cold water, and full-sized stoneware baths, for the use of four families. The floors are cemented and the walls are glazed. In every kitchen there is a cooking range, with oven, boiler, etc. For fuel storage there is a coal bin holding 3 hundredweight. There is a larder in the kitchen which opens to the outer air; also a dresser with two drawers, and cupboards for chinaware. A dwarf cupboard 14 by 10 inches, with hooks below, has been put in living rooms. There are grates with trivets in all the chambers. The woodwork inside the dwellings is grained and varnished. Externally there are usually red brick facings or cement in imitation of terra cotta.

The company does all its own building, and its pay roll ordinarily amounts to £2,000 ($9,733) per week.

The rentals for all block buildings are based upon an average of 2s. 6d. (61 cents) per room, but two-room tenements vary from 4s. to 5s. (97 cents to $1.22), and three-room from 6s. to 7s. ($1.46 to $1.70), and are occasionally as high as 8s. 6d. ($2.07) per week. Two-room and three-room tenements are the prevailing types in the block buildings, although single rooms have been provided for widows and spinsters. Rents are paid during the week in which they are due, and are collected by the superintendent of the building. The rentals have not advanced during the last fourteen years, and generally they are about 15 per cent below the market value of the accommodations furnished. It is not remarkable, therefore, that the sum lost from unoccupied lodgings is so insignificant as to render its mention not worth while. The sums lost during the fiscal year from empties and arrearages in rent together amounted to but the merest fraction of 1 per cent.

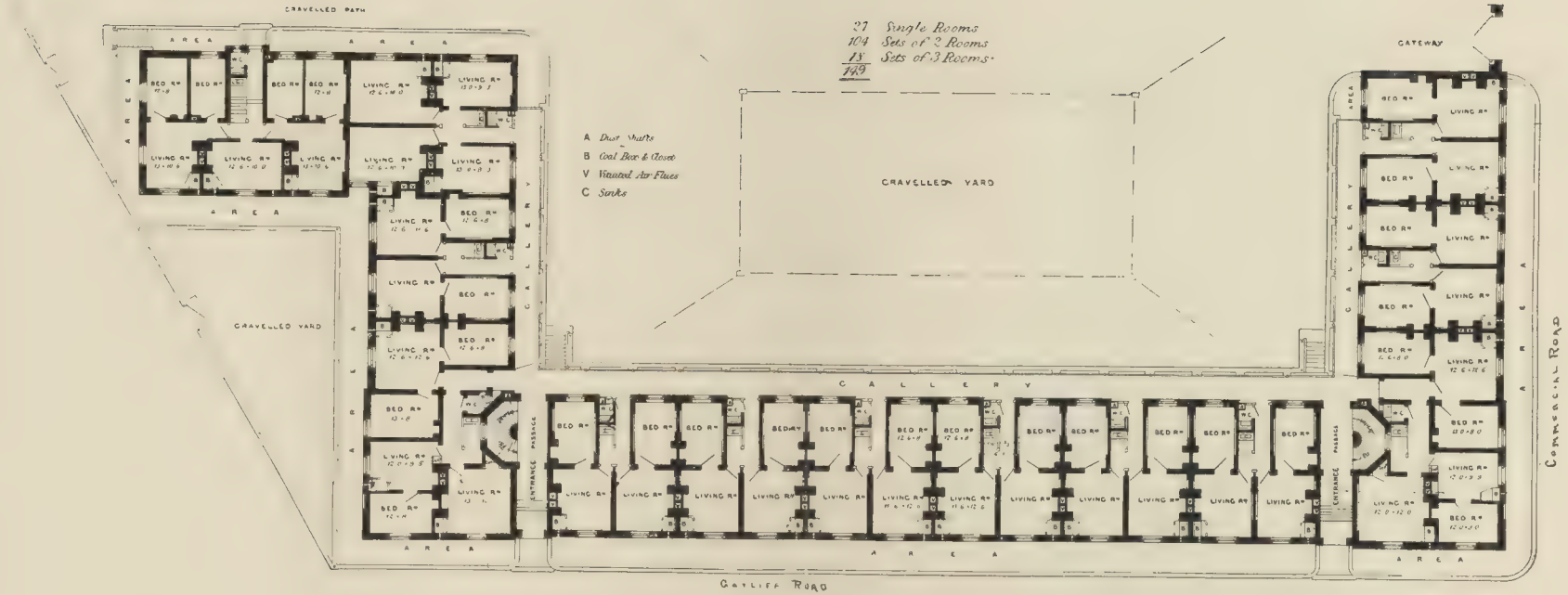
METROPOLITAN ASSOCIATION FOR IMPROVING THE DWELLINGS OF THE INDUSTRIOUS CLASSES, LONDON.

This is the oldest organization of the kind in London, and owns altogether 14 estates, containing 1,412 tenements and 14 shops. The Farringdon road buildings, which represent some of the best property of the association, occupy a little over one-half of a lot containing 33,880 square feet. The open space is between the different buildings, so as to allow through ventilation on all sides of each group. No part of it is covered for recreation grounds for children during rainy weather. The buildings are six stories high and are constructed of brick. Each building in the group has two sets of landings and staircases, which are entirely separate and distinct. Four tenements open to each landing, making a total of twenty-four families in the six stories using one staircase. A small landing outside the rooms of the tenement, but



GATLIFF BUILDINGS, LONDON, ENGLAND.

PLAN NO. 27 A.



GATLIFF BUILDINGS, LONDON, ENGLAND.

PLAN NO. 27 B.

shut off by a gate from the common staircase, has been constructed for every two sets of dwellings. Water-closets for each family are inside the tenements, but they do not communicate directly with the living rooms. Dust shafts are provided for the reception of dust, ashes, etc.; the garbage must be burned. There is a laundry for the use of tenants. Gaslighting is provided by the association, on stairs, balconies, and in the passages. The lights are extinguished at 11 p. m., except on Saturdays, when they burn till midnight.

The front elevation of the Gatliff buildings, one of the best properties of the association, situated at Pimlico, together with floor plan, is shown in the accompanying sketches (plans Nos. 27 A and 27 B).

In the Farringdon road buildings the prevailing rent of two-room tenements is from 5s. to 5s. 6d. ($1.22 to $1.34) per week; three-room tenements, from 6s. to 7s. 3d. ($1.46 to $1.76) per week; four-room tenements, from 6s. 9d. to 9s. 6d. ($1.64 to $2.31) per week.

The mortality among the occupants of the property of this association was 14.47 per 1,000 during the year ending March 31, 1893, including 16 deaths which occurred in hospitals and infirmaries. The average number of inhabitants in the houses of the association was 6,494. In the entire metropolis of London for the year ending June 30, 1893, the death rate was 19.2 per 1,000. As regards infant mortality deaths under one year of age were at the rate of 162 in every 1,000 births on the property of the association, and in the entire metropolis at the rate of 155 for every 1,000 births. There were 203 births, being a rate of 31.2 per 1,000 of the population of the dwellings of the association, while the birth rate of the entire metropolis was 30.9 per 1,000.

The present share capital of the association is £192,200 ($935,341.30). Almost the whole of it has been subscribed by different shareholders, a small legacy of £1,000 ($4,866.50) being the exception. Up to 1890 the association paid 5 per cent annual dividend. Since that time it has paid 4½ per cent. The total amount of reserve set aside up to March 31, 1893, was £11,000 ($53,531.50). Were this counted, the net profit would exceed 4½ per cent. The total amount of borrowed capital is £60,578 12s. 1d. ($294,805.78), part of which is a private loan; but the greater part of it came from the public works loan commissioners. Three and 3½ per cent are paid upon the different loans. Rates and taxes for the year ending March 31, 1893, were paid as follows on the property of the association:

Local rates	$16,445.02
House duty	40.05
Land tax	81.64
Income tax	2,143.33
Tithes	7.85

The loss of rental from unoccupied lodgings, together with bad debts, during the fiscal year 1892 was $2,340.79. The average weekly empties for 1892, including the cottage property, was 1.43 per cent. Rents are

paid weekly in advance at the superintendent's office. One week's notice of intention to quit is required. The total sum lost from nonpayment of arrears of rent during the fiscal year 1892 was £33 13s. 5d. ($163.86), or a minute fraction of the total rent roll. Tenants are not permitted to sublet or to receive boarders. The tenant simply signs an agreement to observe the rules and regulations and to pay in advance. The general regulations governing tenants contain the usual prohibitions and prescriptions. They do not require special mention.

FOUR PER CENT INDUSTRIAL DWELLINGS COMPANY, LONDON.

The authorized capital stock of this corporation is £80,000 ($389,320), of which £60,775 ($295,761.54) has been paid in. It started operations in 1885, and up to 1893 had paid 4 per cent per annum. The property at the end of 1891 consisted of two completed groups of dwellings and one in course of construction. In 1893 a group, containing 176 one, two, and three room dwellings, was completed. The Brady street model dwellings (plan No. 28), which are strictly first class in every respect, comprise two large blocks, each 308 feet long, with double frontages, containing in all 192 three-room and 48 four-room tenements, and two smaller blocks, each 38 feet long, with double frontages, containing 45 single-room tenements, 4 bathrooms, a suite of rooms for the superintendent, and another for the janitor. The buildings inclose a playground having an area of over one-third of an acre, part of which is planted with shrubs, etc. There is a clubroom and library (plan No. 29) attached to the buildings, which contain the following accommodations: (1) Men's clubroom or news room; (2) men's conversation room; (3) billiard room; (4) women's clubroom; (5) women's conversation room; (6) library; (7) class room; (8) concert room, with stage, etc.; (9) rooms for custodian, with lavatories, etc., for men and women.

The cost of the freehold site upon which these buildings are erected, affording a total building area of 48,000 square feet, was £55,680 ($270,966.72).

Rentals for single-room tenements are 1s. 6d. (37 cents) per week, for three-room tenements, according to location, from 4s. to 5s. 6d. (97 cents to $1.34) and for four-room tenements from 5s. 6d. to 7s. ($1.34 to $1.70). The maximum rent is 7s. ($1.70) per week. The tenements are self-contained, each having a separate entrance from the open staircase and a separate water-closet and scullery. The rentals range from 30 per cent to 50 per cent below the rentals of other buildings in the district. The population in the buildings at the end of December, 1893, comprised 276 men, 315 women, and 570 children. The occupations of heads of tenant families appear in the subjoined table:



BRADY STREET DWELLINGS OF THE FOUR PER CENT INDUSTRIAL DWELLINGS COMPANY, LONDON, ENGLAND

PLAN NO. 28.



CLUB AND LIBRARY OF BRADY STREET DWELLINGS OF THE FOUR PER CENT INDUSTRIAL DWELLINGS COMPANY, LONDON, ENGLAND

PLAN NO. 29.

OCCUPATIONS OF TENANTS OF THE BRADY STREET DWELLINGS.

Occupation.	Number.	Occupation.	Number.	Occupation.	Number.
Agent	1	Engineers	4	Poulterer	1
Bakers	2	French polisher	1	Printers	3
Blacksmith	1	Furrier	1	Scaffolder	1
Bootmakers, finishers, etc.	22	General dealers	10	Skin dresser	1
Brewer's porter	1	Grocers	2	Stevedore	1
Bricklayer	1	Jeweler	1	Stick makers	5
Butcher	1	Laborers	4	Tailors and kindred trades	71
Cabinetmakers	20	Maltster	1	Teachers	2
Cabmen	2	Mantle maker	1	Travelers	10
Capmakers	17	Midwife	1	Turner	1
Carmen	6	Packer	1	Upholsterer	1
Carpenters	3	Packing-case maker	1	Warehousemen	2
Carver	1	Painter	1	Watchmakers	3
Cigar and cigarette makers and kindred trades	21	Pilot	1	Wire and zinc workers	3
Confectioner	1	Plate layer	1	Various occupations	33
Coppersmith	1	Policeman	1		
Diamond polishers	2	Porter	1		
		Postmen	2		

The buildings were fully occupied during the last fiscal year and only £11 ($53.53) was lost from nonpayment of arrearages.

In addition to the Brady street dwellings there are also the Charlotte de Rothschild model dwellings containing accommodation for about the same number of persons, and the new buildings recently erected opposite the latter. Tenants are possibly of a slightly lower grade in the Charlotte de Rothschild than in the Brady street model dwellings.

Rents are paid weekly in advance, and before entering all tenants must make a deposit of 5s. ($1.22), except tenants of single rooms, who must deposit 2s. 6d. (61 cents). A week's notice is required of intention to quit. Subletting or receiving boarders is not allowed. Instead of laundries a boiler has been placed in each of the sculleries, so that family life is isolated to the greatest extent possible.

The borrowed capital of the company at the end of 1893 amounted to £66,000 ($321,189), upon which 3½ per cent interest was paid. In 1893, after paying the interest on debentures and a dividend of 4 per cent, a sum equal to about 2¼ per cent was placed to the reserve fund and carried forward as a cash balance. The earnings of this company, which has its buildings always full and is among the best of the model companies as regards the character of the accommodation it provides, were thus last year 6¼ per cent. The annual average has been not far from 7 per cent. The reserve fund accumulated up to December 31, 1893, amounted to £3,600 ($17,519.40), or nearly 6 per cent on the paid-up capital.

EAST END DWELLINGS COMPANY, LONDON.

This company, at the end of the fiscal year 1891, owned ten blocks of tenement buildings valued at £95,294 5s. 8d. ($463,749.63). These are the Katharine buildings, consisting of one and two room tenements, containing in all 281 rooms; the Lolesworth buildings, containing 160 one-

room and 40 two-room tenements, besides a clubroom, and 2 shops with dwellings attached; the Museum buildings, containing 36 tenements of one, two, and three rooms, and 9 shops with dwellings attached; the Strafford houses, containing 32 tenements and 8 shops; the Gordon dwellings, containing 50 tenements; and the Cromer street estate, consisting of two blocks of tenements, containing respectively 10 sets of four-room and 20 sets of three-room dwellings, as well as three blocks of tenements containing a total of 259 rooms. Other buildings were in course of erection at the end of the year 1891.

In the Katharine buildings the rental of one-room tenements varies from 2s. to 3s. 6d. (49 to 85 cents) in the first and second stories, from 1s. 9d. to 3s. (43 to 73 cents) in the third and fourth stories, and from 1s. 6d. to 2s. 9d. (37 to 67 cents) in the fifth story, per week. The rental of ordinary two-room tenements is 5s. 6d. ($1.34) per week in the first and second stories, 5s. ($1.22) in the third and fourth stories, and 4s. 6d. ($1.10) in the fifth story. Two very large rooms rent for 6s. 6d. ($1.58) in the first and second stories, 5s. 6d. ($1.34) in the third and fourth stories, and 5s. ($1.22) in the fifth story. The total rent roll of all the estates of the company for the fiscal year 1891 was £7,808 18s. 11d. ($38,002.23).

The company was incorporated in 1884. Its authorized capital stock is £100,000 ($486.650), of which £80,410 ($391,315.27) had been paid in at the end of 1891. The dividends paid for the years 1885 to 1889, inclusive, were 4 per cent; in 1890, 4½ per cent; in 1891, 5 per cent. A small reserve of £500 ($2,433.25) was available at the end of the year 1891. The sum of £19,797 8s. 5d. ($96,344.15) represents the amount of existing mortgages on the property, upon which 3½ and 4 per cent interest is paid. The loans have all been obtained from the public works loan commissioners. The loss of rental resulting from unoccupied lodgings in the tenement blocks, excepting the Cromer street estate, during the fiscal year 1891 was £383 9s. 9d. ($1,866.24), or 5⅜ per cent of the gross rental. The bad debts at the end of the fiscal year 1891 for the same tenement buildings amounted to £111 3s. 9d. ($541.09), while the amounts due and arrearages aggregated £100 7s. 7d. ($488.50). Rents have been collected, by lady collectors, on the plan of Miss Octavia Hill since 1885.

TENEMENT DWELLINGS COMPANY, LONDON.

The object of this company seems to be to buy up property, improve it, put it in thorough sanitary shape, and rent it at reasonable rates. The company does not necessarily buy block dwellings.

The total amount of share capital paid in at the end of the fiscal year 1893 was £15,686 ($76,335.92). The borrowed capital amounted to £17,000 ($82,730.50), upon which 4¼ per cent interest is paid. The income from the different properties owned, for the fiscal year 1893, amounted to £2,657 18s. 10d. ($12,934.87). The enterprise has paid 5 per cent dividend, except in 1888, ever since the company was formed.

A small reserve, equal to £230 ($1,119.30), must be added in order to estimate the net profit on fiscal operations.

This company aims to shelter different classes of tenants. The smaller portion of its property gives accommodation to the very lowest, and rates are so fixed that a deficit is barely avoided. Another estate is occupied by a better class, and from it a considerable profit is obtained. The largest investment is the Bolina road estate, comprising seventy-four houses, which when bought were new houses of a good class, each containing 2 three-room tenements and a scullery. There is a good yard behind each house, which is common to both tenements. The rent charged is 6s. 6d. ($1.58) per dwelling per week. From this estate the profits are considerable. The aim of the company, while not raising the rents of even its highest class of property beyond the prevailing limit, seems to be to look for its dividends from this kind of property. At the Bolina road estate there is a library for the use of tenants.

By the articles of association one-half of the profits earned by the company over and above 5 per cent on the paid-up capital stock for the time being is set aside to form what is known as the tenants' benefit account. The other half goes to form the reserve fund, and when such reserve fund shall have reached 10 per cent of the paid-up capital the whole of such surplus profits will go to the tenants' benefit account. The account is applied for the benefit of tenants in such manner as the directors think fit, but at present it is devoted to the maintenance of a library. In one year a rebate of two weeks' rent was made to the tenants out of the fund.

PEABODY DONATION FUND, LONDON.

The capital for this fund was recruited from three gifts and a bequest from the late George Peabody for the purpose of improving the housing of working people of London. In 1862 Mr. Peabody gave £150,000 ($729,975), known as the first trust; in 1866 £100,000 ($486,650), in 1868 £100,000 ($486,650), and at his death he left a legacy of £150,000 ($729,975), these three sums constituting the second trust, making a total for both trusts of £500,000 ($2,433,250). A few years ago £12,000 ($58,398) were given anonymously. The total amount of the fund at the end of the last fiscal year (December 31, 1893) was £1,110,908 19s. 4d. ($5,406,238.49). The sum of £610,908 19s. 4d. ($2,972,988.49) represents moneys received for rent and interest. The capital expenditure for land and buildings to the end of 1893 was £1,242,048 2s. 11d. ($6,044,427.30). The net earnings, equal from the beginning to from 3¼ to 3½ per cent on the accrued capital, have been placed to the credit of the capital fund. Since the commencement of operations in 1864, £390,000 ($1,897,935) have been borrowed, mostly from the public works loan commissioners, upon which interest at 3½ and 3¾ per cent has been paid. The sum of £255,000 ($1,240,957.50) had been repaid up to the end of the last fiscal year. The following table exhibits in a variety of detail the fiscal operations of the donation fund during the year 1891:

OPERATIONS OF THE PEABODY DONATION FUND, 1891.

[Furnished by the trustees of the Peabody fund. Apparent errors are probably due to the fact that shillings and pence were disregarded in making up the statement.]

Marginal number.	Locality.	Date of opening.	Blocks.	Tenements.	Rooms.
1	Spitalfields	March, 1864	3	58	124
2	Islington	October, 1865	9	293	632
3	Shadwell	January, 1867	4	199	416
4	Westminster	January, 1869	5	146	359
5	Chelsea	April, 1870	4	67	132
6	Bermondsey	July, 1875	6	72	144
7	Old Pye street	August, 1877	9	274	575
			40	1,109	2,382
8	Blackfriars road	July, 1871	19	367	772
9	Stamford street	April, 1875	16	352	736
10	Southwark street	January, 1876	12	264	600
11	Pimlico	August, 1876	29	527	1,282
12	Whitechapel	May, 1881	11	286	628
13	Bedfordbury	September, 1881	5	146	362
14	Great Wild street	February, 1882	13	347	808
15	Orchard street	July, 1882	15	396	861
16	Whitecross street	April, 1883	33	843	1,878
17	Clerkenwell	June, 1884	11	228	514
18	Little Coram street	February, 1885	8	205	450
			172	3,961	8,891
19	First trust		40	1,109	2,382
20	Second trust		172	3,961	8,891
			212	5,070	11,273

Marginal number.	Locality.	Total income.	Expenditure.		
			Rates.	Insurance.	Water.
1	Spitalfields	$5,250.95	$311.46	$34.06	$238.46
2	Islington	16,278.44	2,180.19	145.99	452.58
3	Shadwell	8,540.71	1,202.03	97.33	267.66
4	Westminster	9,270.68	1,124.16	73.00	282.26
5	Chelsea	3,075.63	540.18		175.19
6	Bermondsey	3,216.76	510.98		87.60
7	Old Pye street	15,976.72	1,761.67	87.60	476.92
8	Interest	6,925.03			
9	Expenses of management				
		68,534.92	7,630.67	437.98	1,980.67
10	Blackfriars road	18,770.09	2,438.12	121.66	476.92
11	Stamford street	19,733.66	2,846.90	141.13	506.12
12	Southwark street	15,621.47	1,562.15	87.60	515.85
13	Pimlico	34,607.10	4,228.99	209.26	1,158.23
14	Whitechapel	17,042.48	2,564.64	111.93	437.98
15	Bedfordbury	9,947.13	1,552.41	58.40	282.26
16	Great Wild street	22,113.38	3,576.88	121.66	569.38
17	Orchard street	24,931.08	2,895.57	136.26	676.44
18	Whitecross street	53,293.04	7,693.94	277.39	1,250.69
19	Clerkenwell	14,867.16	2,019.60	82.73	350.39
20	Little Coram street	13,412.07	2,258.05	63.26	345.52
21	Interest				
22	Expenses of management				
		243,738.66	33,637.25	1,411.28	6,569.78
23	First trust	68,534.92	7,630.67	437.98	1,980.67
24	Second trust	243,738.66	33,637.25	1,411.28	6,569.78
		312,273.58	41,267.92	1,849.26	8,550.45

OPERATIONS OF THE PEABODY DONATION FUND, 1891.

[Furnished by the trustees of the Peabody fund. Apparent errors are probably due to the fact that shillings and pence were disregarded in making up the statement.]

Cost.			Area (square feet).	Mean population.	"Empties."	Bad debts.	Marginal number.
Land.	Buildings.	Total.					
$17,222.54	$116,353.15	$133,575.69	13,682	240	$14.60	$1.22	1
54,465.87	271,526.37	325,992.24	70,000	1,166	399.05	7.79	2
12,550.70	197,409.57	209,960.27	44,300	700	121.66	15.39	3
59,867.68	163,957.25	223,824.93	23,500	605	82.73	9.97	4
22,546.49	49,292.78	71,839.27	13,616	219	14.60	23.97	5
23,291.07	39,744.71	63,035.78	27,000	249	462.32	40.57	6
69,303.83	211,283.96	280,587.79	43,000	1,004	97.33	11.50	7
259,248.18	1,049,567.79	1,308,815.97	235,098	4,183	1,192.29	110.41	
66,748.91	277,220.17	343,969.08	125,000	1,344	38.93		8
92,765.22	282,821.51	375,586.73	90,000	1,321	68.13		9
88,857.42	230,555.30	319,412.72	65,849	1,067	87.60		10
79,723.00	570,164.01	649,887.01	173,390	2,194	184.93	12.41	11
50,100.62	280,816.52	330,917.14	68,955	1,117	243.32	29.38	12
45,161.12	158,224.51	203,385.63	31,545	629	19.46		13
96,930.95	339,311.85	436,242.80	63,360	1,418	29.20	5.05	14
106,819.68	383,655.39	490,475.07	81,641	1,455	73.00		15
193,521.24	767,150.19	960,671.43	147,127	3,806	403.92	57.61	16
62,889.78	233,358.41	296,248.19	45,560	917	170.33	18.79	17
109,496.25	179,690.65	289,186.90	54,500	832	82.73		18
993,014.19	3,702,968.51	4,695,982.70	946,927	16,100	1,401.55	123.24	
259,248.18	1,049,567.79	1,308,815.97	235,098	4,183	1,192.29	110.41	19
993,014.19	3,702,968.51	4,695,982.70	946,927	16,100	1,401.55	123.24	20
1,252,262.37	4,752,536.30	6,004,798.67	1,182,025	20,283	2,593.84	233.65	

Expenditure.					Percentage of expenditure of income.	Net profit (per cent).	Marginal number.
Gas.	Wages.	Repairs.	Sundries.	Total.			
$43.80	$306.59	$627.78	$102.20	$1,669.21	31.76	2.68	1
257.92	1,060.90	3,985.66	467.18	8,555.31	52.55	2.37	2
111.93	832.17	1,226.36	326.06	4,058.66	47.52	2.13	3
126.53	452.58	875.97	306.59	3,241.09	34.98	2.69	4
48.67	321.19	335.79	92.46	1,508.61	49.15	2.18	5
48.67	408.79	2,029.33	150.86	3,236.22	100.66		6
243.32	773.77	1,391.82	1,051.16	5,786.27	36.22	3.63	7
.....							8
.....				2,272.66			9
880.84	4,155.99	10,472.71	2,496.51	30,328.03	44.25	2.55	
301.72	900.30	3,255.69	272.52	7,766.93	41.38	3.20	10
257.93	837.04	3,241.09	248.19	8,078.39	40.94	3.10	11
218.99	837.04	2,486.78	282.26	5,990.66	38.34	3.02	12
574.25	1,386.95	2,603.57	593.71	10,754.97	31.63	3.50	13
296.86	905.17	2,350.52	476.92	7,139.16	41.89	2.99	14
141.13	403.92	1,153.36	141.13	3,727.74	37.58	3.06	15
321.19	793.24	3,036.70	321.19	8,740.23	39.52	3.07	16
369.85	895.44	3,036.70	491.51	8,506.64	34.12	3.35	17
851.64	2,112.06	4,725.37	861.37	17,777.32	33.36	3.70	18
262.79	802.97	3,474.68	306.59	7,299.75	49.09	2.56	19
189.79	715.37	710.51	267.66	4,550.18	33.94	3.06	20
.....				42,859.27			21
.....				4,413.92			22
3,786.14	10,589.50	30,074.97	4,263.05	137,605.16	56.46	3.05	
880.84	4,155.99	10,472.71	2,496.51	30,328.03	44.25	2.55	23
3,786.14	10,589.50	30,074.97	4,263.05	137,605.16	56.46	3.05	24
4,666.98	14,745.49	40,547.68	6,759.56	167,933.19	53.78	2.90	

The estates belonging to the Peabody donation fund at the end of 1893 provided 11,273 rooms, not counting bathrooms, laundries, and washhouses. The rooms comprised 5,070 separate tenements, namely, 75 of four rooms, 1,787 of three rooms, 2,404 of two rooms, and 804 of one room. Two blocks of buildings, containing 50 and 60 rooms, respectively, are now in course of erection. The regular census of occupants at the end of the fiscal year showed that 19,937 persons were in residence. This number is somewhat smaller than the average of recent years, the reason being that extensive structural alterations were being made in one of the large buildings.

The rentals paid for the different classes of accommodation in the several estates appear in the following table (the figures including free use of water, laundries, sculleries, and bathrooms):

RENTS CHARGED PER WEEK IN THE VARIOUS GROUPS OF BUILDINGS BELONGING TO THE PEABODY DONATION FUND.

Locality of estate.	One room.	Two rooms.	Three rooms.	Four rooms.
Shadwell	$0.49 to $0.55	$0.79 to $0.85	$1.03 to $1.10	
Chelsea	.55 to .61	.85 to .97	1.10 to 1.16	
Islington	.61 to .73	.79 to 1.22	1.22 to 1.58	
Spitalfields	.61	.85 to .97	1.10 to 1.22	
Bermondsey	.61	.97 to 1.03	1.22 to 1.34	
Westminster	.61 to .79	.97 to 1.34	1.22 to 1.64	
Old Pye street	.61 to .73	.85 to 1.22	1.22 to 1.52	
Blackfriars road	.61 to .73	.91 to 1.10	1.16 to 1.40	
Stamford street	.67 to .73	1.03 to 1.10	1.22 to 1.40	
Southwark street	.73	1.03 to 1.16	1.28 to 1.40	
Pimlico	.67 to .73	1.10 to 1.46	1.40 to 1.83	$1.83
Whitechapel	.73	1.03 to 1.16	1.28 to 1.46	
Bedfordbury	.67 to .79	1.22 to 1.28	1.34 to 1.58	$1.70 to 1.83
Great Wild street	.61 to .73	1.03 to 1.22	1.22 to 1.58	
Orchard street	.67 to .79	1.03 to 1.34	1.28 to 1.76	1.83
Whitecross street	.61 to .85	1.03 to 1.28	1.40 to 1.58	1.76 to 1.83
Clerkenwell	.61 to .73	1.16 to 1.28	1.46 to 1.64	
Little Coram street	.61 to .73	1.22 to 1.28	1.52 to 1.58	

The average rent of each tenement was 4s. 9¼d. ($1.16) per week, and of each room 2s. 1¾d. (52 cents). The average weekly earnings of the head of each family in residence was £1 3s. 7½d. ($5.75). Twenty per cent would therefore appear to be the average proportion of wages of the head of the family going for rent. Rents are about 25 per cent less than for fairly similar accommodation in the neighborhood. This represents the average of all the estates. In some cases there is a much greater disparity in the proportions. The employments of the heads of tenant families would indicate that a fair proportion of artisans of different sorts had found their way into the buildings. In order to make clear the status of residents, the Peabody trustees each year cause a census of occupations to be made. The following table shows the nature of the employments of the heads of all families at the end of 1893:

OCCUPATIONS OF HEADS OF FAMILIES IN BUILDINGS BELONGING TO THE PEABODY DONATION FUND, 1893.

Occupation.	Number.	Occupation.	Number.	Occupation.	Number.
Bag makers	16	French polishers	25	Porters	529
Bakers	27	Furriers	15	Printers	128
Bookbinders, etc	100	Gardeners	7	Sailors	19
Book folders	45	Gas fitters	18	Scavengers	14
Boot and shoe makers	45	Glass cutters	10	Scripture readers	6
Box makers	31	Hatters	16	Servants	89
Brass finishers	27	Harness makers	9	Shirt cutters	8
Brewers' men	120	Jewelers	15	Shopmen	77
Bricklayers	33	Laborers	679	Smiths	48
Brush makers	6	Lamplighters	20	Soldiers	13
Butchers	17	Laundresses	33	Stevedores	12
Cabinetmakers	26	Leather dressers	18	Stokers	29
Cabmen	37	Letter carriers, etc	95	Storekeepers	5
Carmen	271	Lightermen	18	Tailors	97
Carpenters	64	Machinists	72	Ticket collectors	10
Cellarmen	40	Mangle women	27	Tide waiters	6
Charwomen	295	Masons	26	Timekeepers	17
Checkers	29	Messengers	101	Tin-plate workers	15
Cigar makers	10	Metal workers	41	Travelers	15
Cloth workers	15	Molders	6	Turners	7
Coachmen and stablemen	100	Needle women	259	Type founders	7
Cooks	28	Nurses	46	Umbrella makers	14
Coopers	12	Office keepers	22	Upholsterers	15
Costermongers	17	Packers	122	Various handicrafts	37
Engine men	40	Packing-case makers	16	Waiters	68
Engravers	9	Painters, etc	59	Warehouse laborers	176
Farriers	6	Pensioners	27	Watchmen	40
Firemen	22	Plumbers	10	Wheelwrights	9
Florists	8	Police constables	195		

The tenements of the Peabody trust are much sought after. The per cent of unoccupied tenements during the last fiscal year was 0.85 of the whole number. In one instance, the Bedfordbury estate, comprising 146 tenements, 2,500 persons applied for accommodation before the buildings were opened. The loss of rental resulting from unoccupied tenements is comparatively slight. In 1891 it was £533 ($2,593.84). Rents are paid weekly, and in advance, at the office of the superintendent. One week's notice must be given of intention to quit. The trust is liberal in dealing with persons in arrears where good cause exists, but if arrearages are without reason, notice is at once served upon the tenant, who, if recalcitrant, is ejected under process of law, which consumes at least five weeks' time. Arrearages may be carried over from one week to another, but as a rule they are ultimately paid. The total sum lost from nonpayment of these arrearages during the fiscal year 1891 was only £48 0s. 3d. ($233.65). The price of rental has remained the same during the last ten years.

No computation as to the average duration of tenancy has been made, but as a rule there is great stability. Tenants occupying three and four room tenements are almost invariably permanent. There is greater mobility among the occupants of one and two room tenements. The following form of application is filled out by prospective tenants:

THE PEABODY BUILDINGS: APPLICATION FOR DWELLINGS.

1. Name ——.
2. Occupation ——.
3. Weekly wages ——.

4. Address ——.
5. Number of rooms required ——.
6. Whether married or single ——.
7. Number of children residing with parents ——.
8. Ages of boys ——.
9. Ages of girls ——.
10. Have parents and children all been vaccinated ——.
11. Have all past childhood been revaccinated ——.
12. Whether in receipt of parish relief ——.
13. Do you agree to abide by the rules ——.
14. Employer's name ——.
15. Address ——.
16. Applicant's signature ——.
17. Date ——.

On the reverse side are printed the rules, which the tenant obligates himself to obey. The text of these requirements follows:

1. No application for rooms will be entertained unless every member of the applicant's family has been vaccinated, and in the case of those past childhood, revaccinated. The applicant must also agree to have any case of infectious disease occurring in his rooms removed to the proper hospital.

2. The rents for the current week to be paid at the superintendent's office on Mondays, from 9 a. m. till 6 p. m.

3. No arrears of rent will be allowed.

4. The passages, steps, closets, laundry, and lavatory windows must be washed every Saturday and swept every morning before 10 o'clock. This must be done by the tenants in turn.

5. Washing must be done only in the laundry. Tenants will not be permitted to use the laundries for the washing of any clothes but their own. No clothes shall be hung out.

6. No carpets, mats, etc., can be permitted to be beaten or shaken after 10 o'clock in the morning. Refuse must not be thrown from the doors or windows.

7. Tenants must pay all costs for the repairs, etc., of windows, keys, grates, and boilers broken or damaged in their rooms.

8. Children will not be allowed to play on the stairs, in the passages, or in the laundries.

9. Dogs must not be kept on the premises.

10. Tenants are required to distemper and whitewash their rooms at least once a year to the satisfaction of the trustees or their agents, but must not paper, paint, or drive nails into the walls.

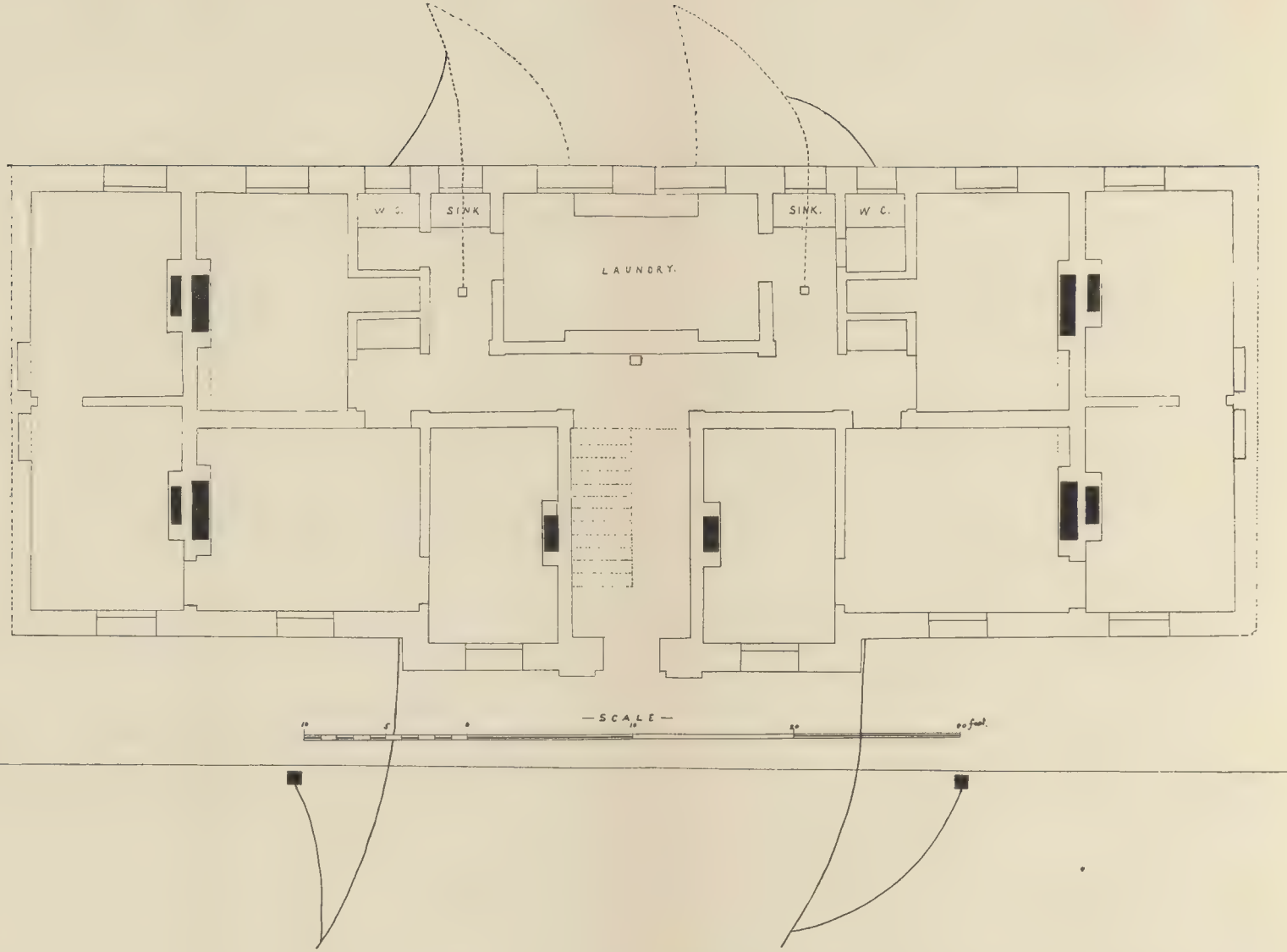
11. No tenant will be permitted to underlet or take in lodgers, or to keep a shop of any kind.

12. The acceptance of any gratuity by the superintendent or porters from tenants or applicants for rooms will lead to their immediate dismissal.

13. Disorderly and intemperate tenants will receive immediate notice to quit.

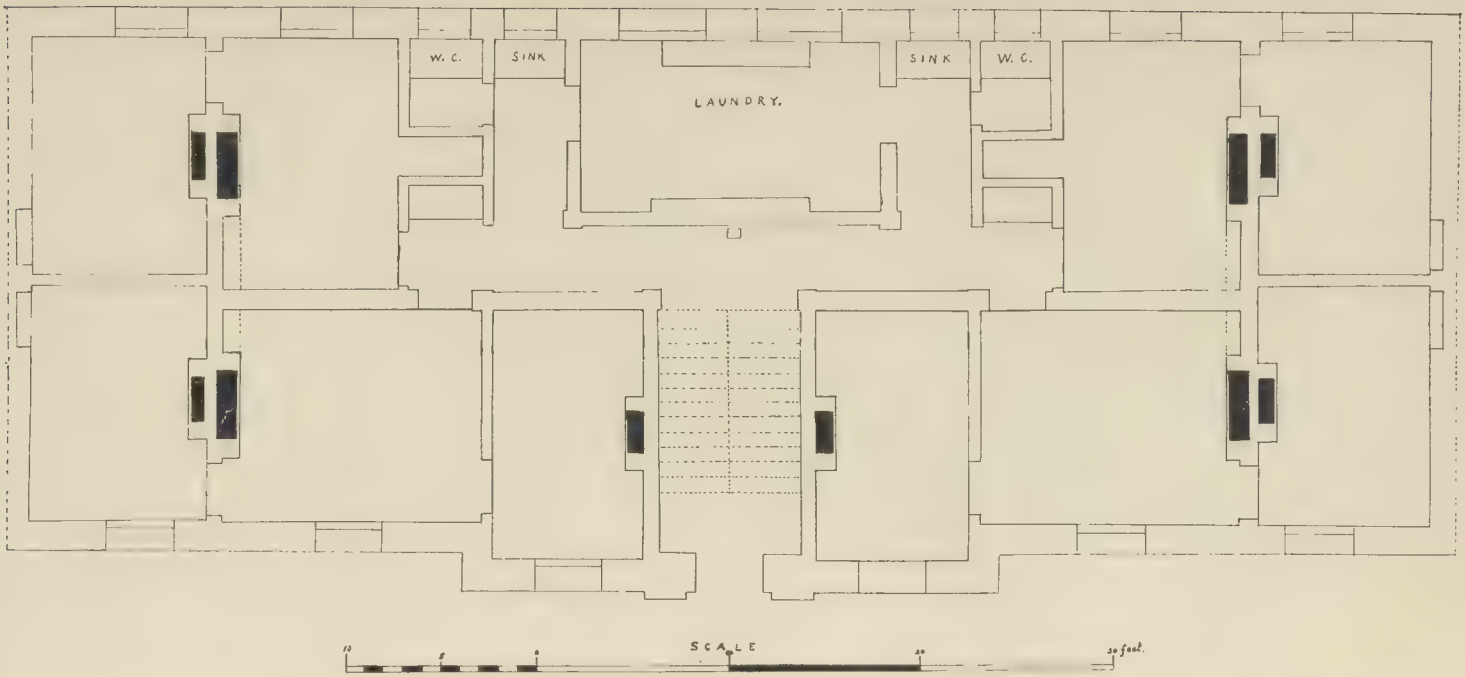
14. The gas will be turned off at 11 p. m.

15. Tenants are required to report to the superintendent any births, deaths, or infectious diseases, such as smallpox, measles, diphtheria, and scarlet, typhoid, and typhus fevers occurring in their rooms. Any tenant not complying with this rule will receive notice to quit.



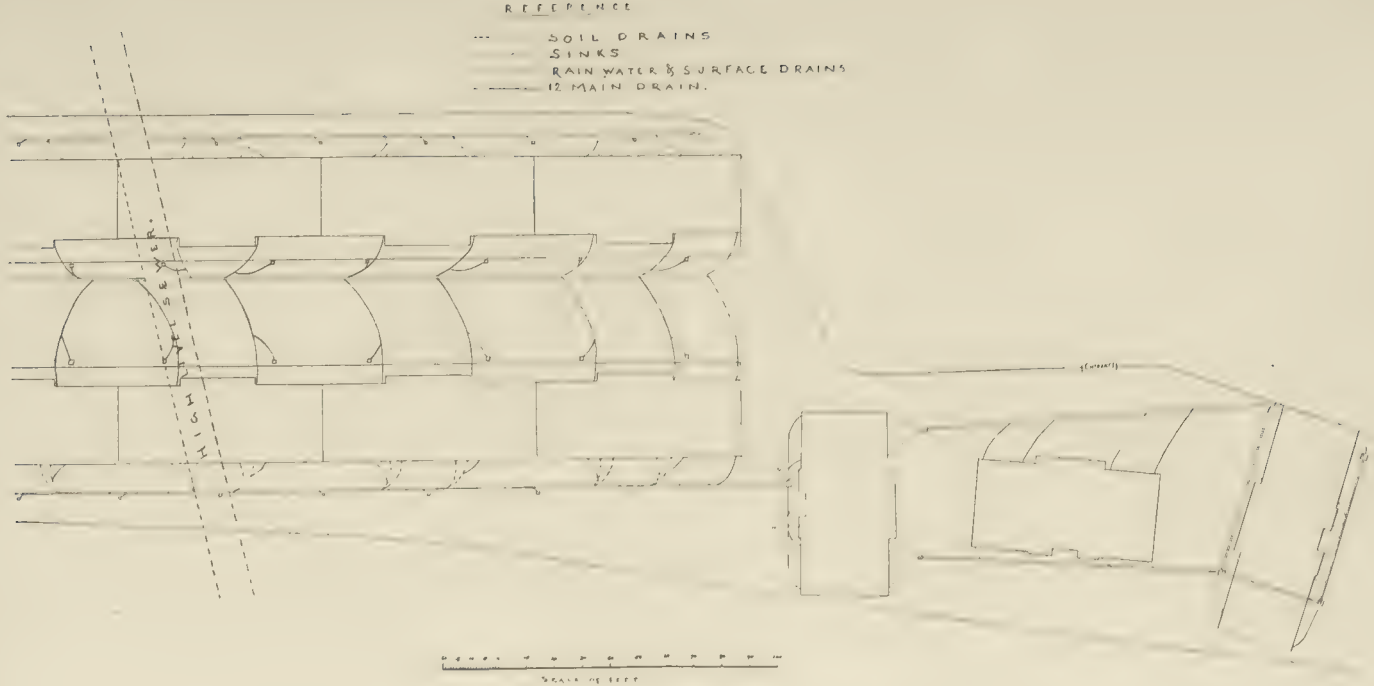
PIMLICO BUILDINGS, PEABODY TRUST, LONDON, ENGLAND -PLAN OF GROUND FLOOR, BLOCK S, PEABODY AVENUE, SHOWING ONE AND FOUR ROOM DWELLINGS.

PLAN NO. 30 A.



PIMLICO BUILDINGS, PEABODY TRUST, LONDON, ENGLAND—PLAN OF FOURTH FLOOR, BLOCK S, PEABODY AVENUE, SHOWING TWO AND THREE ROOM DWELLINGS.

PLAN NO. 30 B.



PIMLICO BUILDINGS, PEABODY TRUST, LONDON, ENGLAND DRAINAGE SYSTEM.

PLAN NO. 30c.

As a rule, the men chosen for porters, janitors, and assistants are army, navy, or police pensioners. The estates of the Peabody trust are conveniently situated with reference to the working locality of occupants. Taking the Pimlico buildings as an example, 22 heads of families did work at home, 72 had to go less than one-fourth of a mile, 176 from one-fourth to one-half of a mile, 99 from one-half to three-fourths of a mile, 67 from three-fourths to one mile, 74 from 1 to 1½ miles, 8 from 1½ to 2 miles, 4 from 2 to 2½ miles, 3 from 2½ to 3 miles, 1 from 3 to 3½ miles, and 1 8 miles, to their places of regular employment. The overwhelming majority, it will be seen, were within less than a mile from their work. Those going a greater distance pay 2d. (4 cents) each way for a trip by boat, omnibus, or workmen's train, with the exception of the last two enumerated, who go by railway at an expense of 4d. (8 cents) each way.

Baths and laundries have been provided in all the Peabody buildings, but as cold water only is supplied to baths they are but little used, notwithstanding that no fee is charged.

If there is one point more than another upon which the Peabody trustees feel a pardonable pride it is the salubrity and convenience of their dwelling accommodations. Abundant evidence of their claim is furnished by the official returns. In 1893 the birth rate was 35.1 per 1,000, or 4.1 per 1,000 above that of all London. The death rate, including residents who died in hospitals, was 17.6 per 1,000, or 3.7 per 1,000 below the average of the metropolis. The infant mortality was 126.4 in each 1,000 births, or 37.9 below that of London. These figures speak for themselves and need no further comment.

After the recital of these facts, which refer to the operations of the trust as a whole, it may not be out of place to describe in greater detail one of the estates. The buildings selected are situated at Pimlico, and plans of the ground floor and fourth story, as well as a section of the drainage system, are given (plans Nos. 30 A, 30 B, and 30 C).

The frontage of the lot is 1,240 feet and its depth 140 feet. About 37 per cent of the total superficial area is covered with buildings. The open space is found both in front and rear, and is paved. It is partly designed for recreative purposes, though no portion of it is covered for use in rainy weather. The buildings are four and five stories high, respectively, and are built of brick. The thickness of the exterior walls is 18 inches at the foundation and 9 inches at the top. The interior walls dividing the rooms from one another are 4½ inches thick. The roofing is of slate and the staircases of stone. There are no other special arrangements for rendering the buildings fireproof. The buildings have cellars paved in stone. The dwellings are not entirely self-contained, the water-closet being approached from the landing opposite the laundry and each one being utilized by two families. The water-closets are trapped at the foot, each one ventilated by a pipe running to the

roof, and they are provided with waste-water preventers. A tank holding two gallons, and situated near the ceiling, is filled automatically; when the closet is used the tank is opened and the contents flush and clean the bowl. Ventilation has been well looked after. Under the fireplaces there are ventilating bricks communicating with tubes leading directly to the outer air. There are also ventilating bricks over doors communicating with the passages, and, when over the windows, with the outside air. Within each tenement there is a cooking range and a box for fuel storage which will hold 500 pounds of coal. The garbage receptacle is in the basement. A pantry has been fitted over the coal box. There are no clothespresses, lamps, chandeliers, mirrors, or interior decorations of any sort. Externally nearly all the Peabody buildings bear a substantial and somewhat grim-like appearance. There has been no attempt at decoration, the æsthetic element having been disregarded, it is claimed, because it was not desired to attract a high grade of tenants. In the Pimlico buildings there is some attempt at external decoration, but this was done in order to overcome the objection of neighbors and to satisfy certain conditions prescribed by the original owner of the site.

The Peabody trustees have been charged with not responding in the fullest degree to the intentions of the founder, in housing a higher grade of tenants than was originally designed. It can not be maintained that the average earnings of heads of families, as previously given, would indicate that the better element among laborers was received as tenants, still it is undeniably true that the figures are too high for the casual laborer and the poorer elements among the artisans, which it was intended by Mr. Peabody to provide for.

Sir Curtis M. Lampson, one of the trustees, in his evidence before the English royal commission on housing of the working classes, in 1884, gives an interesting analysis of the tenants with reference to their economic status. In 141 families the head earned under 12s. ($2.92) per week; in 294 families the earnings were from 12s. to 15s. ($2.92 to $3.65) per week; in 129 families, from 15s. to 17s. 6d. ($3.65 to $4.26); in 446 families, from 17s. 6d. to 20s. ($4.26 to $4.87); in 1,680 families, from 20s. to 25s. ($4.87 to $6.08); in 1,499 families, from 25s. to 30s. ($6.08 to $7.30); while the heads of 118 families earned 30s. ($7.30) and over. It very frequently happens that the economic situation of the husband and father materially improves after he has taken up residence in the buildings. It would undoubtedly be a hardship if, owing to these circumstances, he should be obliged to leave. There is a great deal of difficulty in dealing with such cases, and when one considers that the stability of occupation has been so great one can easily see why the earnings of heads of tenant families should appear relatively high, notwithstanding that a careful selection was made at the beginning and the economically poor given the preference.

GUINNESS TRUST, LONDON.

The Guinness trust is due to the beneficence of Lord Iveagh (Edward Cecil Guinness), who in recent years made a gift of £250,000 ($1,216,625) to improve the living environments of working people. Two hundred thousand pounds ($973,300) was to be spent in London and £50,000 ($243,325) in Dublin. By the terms of the trust the poorer element only among the working people was to be accepted as tenants, and the net returns were to be applied to perpetuating the work. Provision for 3,245 people has already been made in London.

The Brandon street, Walworth, model tenements have been selected for description. Two parallel blocks have been erected, each 30 feet in depth and having a frontage of 218 feet upon a lot having a frontage of 250 feet and a depth of 120 feet. Only about 40 per cent of the ground, therefore, has been built upon. The open space is represented by a frontage of 6 feet, measuring from the pavement, a courtyard averaging 34 feet between the two blocks, and another averaging 20 feet in the rear. The courts are paved with granolithic. The open space is entirely given up to the free use of occupants, and a part of it has been converted into a small shelter, with seats, where children may play during rainy weather. Shrubs, flowers, plants, etc., have been disposed in certain parts.

The buildings are of brick, five stories in height. The thickness of the exterior walls is 14 inches. The roofing is of wood, covered with slate. Staircases are made of concrete; and iron girders supporting concrete floors 7 inches thick and ladders give to the building a fireproof character, and guarantee means of escape in special exigencies. There are several separate street entrances. Four or five families enter their dwellings from each landing. The passages and hallways are finished to a height of 5 feet in white glazed brick or tiles, which material is also used in the water-closets. Not more than one door from every family lodging opens directly upon the stairway or hallway. Every room communicates directly, either by doors or windows, with the open air. Hit-and-miss ventilators have been provided, and also windows with a very deep baseboard, so that they may be raised 2½ or 3 inches without permitting a direct current of air below while providing additional circulation through the aperture made where the upper and lower sections ordinarily come together. There are no ventilating transoms over the doors. Water-closets exist in the ratio of one to each two tenements, so that about eight persons, on the average, use a single closet. Closets are situated inside the building on each floor landing opposite the entrance to the laundry. They are of modern pattern in every way, and irreproachable from a sanitary point of view. The plumbing is also as nearly perfect as can be found. Joints are air-tight, soil pipes are ventilated, and traps have been placed wherever necessary. All the sewer pipes in the yard tend toward one

distinct center, and they are cleansed regularly by a powerful automatic forty-gallon flush. The quantity of water is unlimited. Lighting is done with gas. Tenants provide their own heating. Washing is not done in the different dwellings. A laundry for each four tenements has been placed on every stair landing. Its use is restricted to one family for one day in the week. This regulation is wholesome, doing away with gossiping, and preventing loss of clothes. As the clothes of no two families are in one tub, the chance of infection in case of sickness is to some extent lessened. Every laundry is fitted with a boiler, two tubs for washing, and hooks in the walls for drying lines. A cooking range fitted with an oven has been placed in every living room. A coal box holding from 250 to 300 pounds has been fitted under the larder. Dust shoots are on each floor, and in every living room there is a pantry with shelves, hooks, etc. A clothespress with shelves and hooks has been placed in every bedroom. There is also a fireplace in each of the bedrooms. All windows have Venetian blinds. Walls have been painted a salmon color, and the tiling in the halls presents a fine appearance. Externally the general appearance of the buildings is far removed from the dull, stolid look so common to model dwellings.

The Brandon street model buildings contain 42 one-room tenements, with an average air space of 1,250 cubic feet each; 128 two-room tenements, with a space of 2,082 cubic feet to each, and 20 three-room tenements, having an average air space of 3,094 cubic feet. Many of the three-room tenements are in reality large two-room tenements, but in order to cater to the necessities of a worthy but impecunious class which is much desired for tenants, and at the same time to bring about the separation of the sexes, a wooden partition (which does not quite reach to the ceiling) divides what would be a very large bedroom into two rooms for sleeping purposes. The ceilings are 8 feet 6 inches high throughout. In single-room tenements a man, wife, and two children whose average age is 7 years, are allowed as tenants.

The rental of tenements varies somewhat according to their location in the different stories. One-room tenements on the first and second floors rent for 2s. 6d. (61 cents) weekly. Similar accommodation on the third floor costs 2s. 3d. (55 cents); on the fourth floor, 1s. 9d. (43 cents); on the fifth floor, 1s. 6d. (37 cents) weekly. Two-room tenements on the first and second floors cost 4s. (97 cents) weekly; on the third floor, 3s. 9d. (91 cents); on the fourth, 3s. 3d. (79 cents); on the fifth, 3s. (73 cents). Three-room tenements rent for 5s. ($1.22) per week on the first and second floors, 4s. 9d. ($1.16) on the third, 4s. 3d. ($1.03) on the fourth, and 4s. (97 cents) on the fifth. An extra charge is made for use of blinds, baths, chimney sweeping, hot-water supply, and clubroom, as follows: One-room tenements, 3d. (6 cents) per week; two-room and three-room tenements, 6d. (12 cents) per week. This charge is not optional with the tenant, but must be paid in every case. In reality it is a part of the rental, but it was imposed in this form with the design

of causing that class of people who are not very careful in their personal habits to bathe, and to patronize the clubroom. The fact that this sum is exacted as an extra charge forcibly strikes the tenant, as a rule, about the second week of his occupancy. It is always printed upon his rental receipt. He usually enters a protest against this exaction, saying that he does not care to use the bath and hot-water supply or to go to the clubroom. He is told, however, that the company regrets that his views are such, but that as it has gone to the expense of providing these accessories it must be indemnified. Then, as a rule, that spirit in human nature which declines to pay something without having a return comes upon the tenant so strongly that he says, "Well, if I must pay for these things I will use them." The result has been a most satisfactory patronage of baths, a growing interest in the clubroom, and the utilization of the hot-water supply at different times of the day. Housewives have found this latter a great convenience, and a considerable saving as well. Where a cup of tea or coffee is desired for the midday meal, when the husband is away from home, the housekeeper formerly had to waste coal by building a fire for its preparation. Now she may walk downstairs at certain hours and get as large a supply of hot water as is necessary. The bathing of children, too, has been greatly encouraged by this happy expedient. Capt. T. H. Vickers, the secretary of the trust, is thoroughly convinced that the general method adopted in thus disguising what is really a part of the rent as an extra charge has had an exceedingly favorable effect upon the habits of the class of people who are tenants. A marked reformation has been noticed after a few weeks' residence. In one instance several months passed before anyone entered the clubroom in the evening. Finally one man sneaked in, and within six months afterwards there was an average evening attendance of about 33 per cent of the male heads of families.

The Guinness trust has not yet completed its work in London. Four different estates have been created, containing in all 263 one-room, 541 two-room, and 139 three room tenements. Three thousand two hundred and forty-five persons were housed in all these buildings during the fiscal year 1893. The buildings on the extension of the Lever street site, toward the cost of which the Goldsmiths' Company has given £25,000 ($121,662.50), and those in Vauxhall Square were expected to be ready for occupancy during the spring of 1894. Buildings are also in course of erection on the site in Page's Walk, where there is especial need of cheap model dwellings. When all these buildings are completed they will contain 1,875 separate tenements with 3,705 rooms. Only about half the accommodation to be provided was ready for occupation at the end of the fiscal year 1893.

There have been no epidemics in any of the buildings, and there were 73 deaths and 129 births among tenants during the year 1893.

The total capital of the London fund December 31, 1893, was £252,341 11s. 7d. ($1,228,020.30). Of this amount £25,000 ($121,662.50) came as a donation from the Goldsmiths' Company, £200,000 ($973,300) from the original gift of Lord Iveagh, while the remainder, £27,341 11s. 7d. ($133,057.80), represents accrued income from rental and investments which under the terms of the trust go to increase the capital stock. Three per cent is the net profit. This is an admirable showing, considering the low rentals which have been charged, but it is stated that though the tenants are poor they pay rent with little trouble, and that the buildings are so sought after that out of 945 tenements there were not a dozen empty during 1893. The borrowed capital amounts to £14,048 12s. 1d. ($68,367.53), taken mainly from the Dublin fund.

The total amount received for rent from the Brandon street buildings during the fiscal year was £1,857 1s. ($9,037.33). Rents are paid weekly in advance to the superintendent on the premises. A tenant must give one week's notice of intention to quit. The total sum lost from arrearages of rent during the fiscal year was a little less than £20 ($97.33). It is estimated that about 22 per cent of the earnings of the heads of families is paid for rent. Strange as it may seem, the conviction is voiced that the poorest people are the best to pay. Great care is exercised in ascertaining the financial standing of prospective tenants. It has been determined by the trustees not to allow the object of the trust to be diverted from the intention of the founders. The poorer strata of working people are meant to be benefited, consequently the earnings of every head of a family are carefully ascertained before he is allowed to move in. At the end of the fiscal year 1892 18s. 7d. ($4.52) per week represented the average earnings of each family—not the head of the family, but the whole family as a unit. One year later (1893) the average had declined to 18s. 1d. ($4.40).

The conditions of occupation are set forth below. They are given *in extenso* for the reason that they have special interest. This class of tenants is usually considered rather difficult to deal with, and as a rule experience with them has not been wholly satisfactory:

1. The tenant agrees to act in accordance with the following conditions, and failure to do so shall be a sufficient cause for the determination of the tenancy.
2. To pay a deposit of 3s. (73 cents) on entering upon tenancy, from which deduction will be made for damage found on giving up possession, and any balance left will be returned to the tenant. The decision of the superintendent as to amount of deduction to be final.
3. To pay the rent weekly in advance, between the hours of 9 a. m. and 5 p. m. on Mondays, at the superintendent's office. No arrears of rent will be allowed. The printed form of receipt issued by the trust must be retained by the tenant.
4. To pay on demand for all damage, fixtures removed, and injury to the premises by such removal, and for all broken panes of glass, and broken blinds, tapes, and cords.
5. Not to sublet any portion of the tenement or to take in lodgers.

6. Not to keep any animals in the tenement.
7. Not to use the tenement as a shop for the sale of goods.
8. Not to sell intoxicating liquors of any kind.
9. Not to misuse, improperly occupy, be guilty of or allow disorderly or intemperate conduct in the tenement, nor in any way cause annoyance to the neighbors. Drunken and disorderly tenants will be subject to have their tenancy terminated immediately, and to forfeit the rent paid.
10. To keep the tenement and its windows clean, and color-wash it once a year, and in turn with other tenants on the same floor, to clean the water-closets, laundries, sinks, windows, passages, landings, walls, and stairs, to the floor below, and if on the ground floor, to clean as far as the entrance. The stairs and passages to be swept daily, and on Saturday washed before 10 a. m.
11. To allow the landlords, or their agents, at reasonable hours, to see the condition of the rooms.
12. To report all the births, deaths, and cases of infectious disease to the superintendent without delay, and to have any case of infectious disease removed to the proper hospital. All removals to hospital to be reported to the superintendent.
13. Notice in writing on either side, or payment of a week's rent by tenant in lieu of notice, shall be sufficient to determine the tenancy. All notices must be given on Monday to vacate on the following Saturday.
14. If the weekly rent is not paid in advance when due, or if the tenant does not quit and deliver up possession according to notice, the landlords, or their agents, shall be entitled immediately to enter upon, and take, and resume possession of the premises, and to eject, expel, and remove the tenant and all occupiers and his and their goods therefrom without any legal process, and as effectually as any sheriff might do for taking possession of the said premises, and this provision shall be sufficient defense to any proceeding in respect of any such possession being so resumed.
15. To conform to the general rules to be issued by the landlords, and posted up in the buildings, for the comfort and convenience of the tenants generally.

The following is the form of application required of prospective tenants:

1. Name ———.
2. Address ———.
3. How long have you lived at your last address ———.
4. Whether married or single ———.
5. Number of children living with parents ———.
6. Ages of boys, last birthday ———.
7. Ages of girls, last birthday ———.
8. Have parents and children all been vaccinated ———.
9. Have all over 7 years of age been revaccinated ———.
10. Whether in receipt of parish relief ———.
11. Occupation ———.
12. Weekly wages earned by the family ———.
13. What is your employer's name ———.
14. What is his address ———.
15. Do you agree to abide by the general rules ———.

After this application has been filed a visit is made to the person named as employer and the facts regarding earnings ascertained. The tenant is then visited in his lodgings and general notice taken of his surroundings. Selections are made in accordance with the judgment of the superintendent.

The general rules made to insure the comfort and convenience of tenants are included in the following:

1. Anything likely to choke the pipes must not be put into the water-closets, troughs, sinks, and dust shoots, and any stoppage should be immediately reported to the superintendent. Large articles, such as old boots, hats, tins, etc., must be taken down to the dust bin; and, as far as possible, vegetable and all other refuse should be burned.
2. Water must not be allowed to run to waste. Any leakage must be reported to the superintendent without delay.
3. The gas will be lit and turned off by the porter, and no tenant is to tamper with it; any escape should be reported to the superintendent at once.
4. Carpets, mats, etc., are not to be cleaned or shaken on the landings, stairs, or passages, but only in the yards on week days before 10 a. m.
5. Nothing may be thrown from the doors or windows.
6. Washing is not to be taken in from persons not living in the buildings.
7. Clothes are not to be hung out of the windows or in the passages; they should be dried in the laundry.
8. Parents are to warn their children not to loiter or play or make a noise on the stairs, landings, or passages. Games at ball or tip-cat are not allowed in the playground. Parents are responsible for the cost of replacing glass broken by their children.
9. Nails or screws must not be driven into the walls or woodwork, except at a distance of 3 inches from the ceiling.
10. Each tenant in turn will have the use of the laundry on his floor on one day in the week, and it is to be left clean, and the copper dry, by the tenant. The tenant will have the key of the laundry for the day only, and will be responsible for leaving the key on the same evening with the superintendent.
11. Tenants are held responsible that flowerpots are so secured as to prevent their falling from the windows.
12. In dwellings with flat roofs, the doors leading to the roofs should be carefully secured, to prevent access by strangers.
13. The superintendent and porters are not permitted to accept gratuities from tenants or applicants for rooms.
14. The superintendent is instructed to prevent overcrowding and to report all cases of families too large for the accommodation afforded by any tenement.
15. Tenants are to report to the superintendent the loss of keys. A charge of 2s. (49 cents) will be made for a new key.

Superintendents are usually chosen from among army pensioners. They are punctual and exacting, as a rule, in their regulations, and are good disciplinarians.

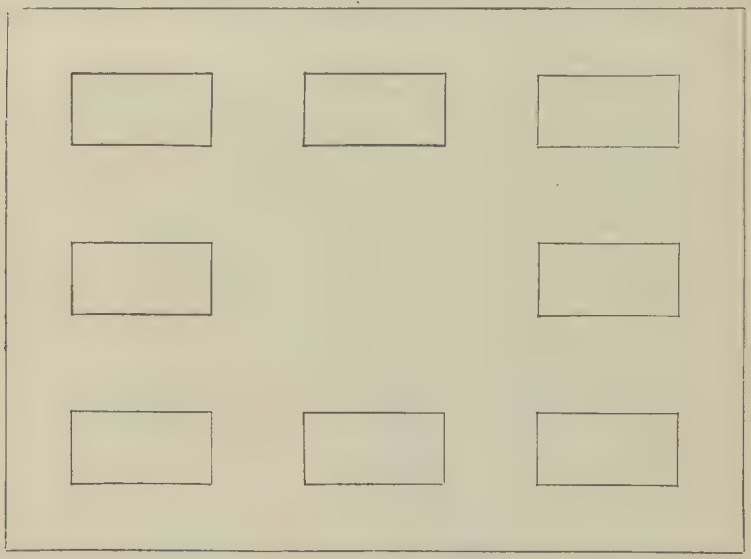
In the Brandon street buildings 58 heads of families live within half a mile from their work, 62 from one-half to one mile, 56 from 1 to 2

miles, and 14 from 2 to 3 miles. The cost of the round trip where transportation is utilized is 2d. (4 cents).

Separate baths, supplied with hot and cold water, have been provided for women and men. Hot water for tea and washing is served from 7 to 8 a. m., 12 m. to 1 p. m., and 5 to 6 p. m. This is heated in special boilers near the boiler room, but tenants have to go downstairs for it.

Day nurseries have been opened, and a small fee has been charged for their use. The whole of this sum, however, has been spent on food for the children. The clubrooms are supplied with papers, books, games, etc. They are well attended, and the Saturday night concerts given by the tenants continue to be popular. As regards average attendance, it may be said that this has notably increased. In the view of the administrators of the trust, the initiatory step towards acquiring this taste was the compulsory fee already referred to.

All the buildings are not erected on the same model. The prevailing type is that exemplified in the Brandon street building, described in the previous pages. Another type is exemplified in the erection of separate pavilions somewhat in the manner outlined below:



Better ventilation is a merit claimed for the latter plan. In all the buildings the general disposition of the interior arrangements is practically the same. The stairways are lighted from above. On every landing are placed sinks, laundries, and water-closets, while from each landing four to five families find entrance to their individual dwellings.

The Guinness trust, under the wise administration which has characterized it thus far, is likely to point out the way to a satisfactory solution of the housing question, so far as philanthropy may be made to operate in the interests of a class which has hitherto rarely been catered to—those who have casual employment and small earnings.

MUNICIPAL MODEL BUILDINGS, LIVERPOOL.

This property is owned and administered by the municipality of Liverpool, and given up to the housing of working people. The site for these buildings was purchased some years ago by the corporation under the artisans' and laborers' dwellings act of 1875. The land was covered chiefly by low-class, unhealthy dwellings, most of them known as "court dwellings." It was a thoroughly crowded, confined neighborhood, thickly populated by laborers and others. Upon the site also were buildings used as stables, tanneries, etc., and a considerable number for other business purposes. For all these compensation was awarded when the compulsory purchase took place. The entire site comprised 22,487 square yards, of which 3,717 square yards were occupied by public streets. The land thus acquired cost on an average about £3 ($14.60) per square yard. The population displaced was 1,310, all of whom, with the exception of about 200, were working people. The number of people living in the area under the worst sanitary conditions was at the rate of 282 per acre. The land was cleared and filled to a proper level and laid out for the erection of dwellings. The corporation itself did not care to undertake the work, and offered the land at auction subject to conditions as to the class of buildings to be erected upon it, as well as the rates of rent for the same. The property was not sold, no one caring to undertake the work. The corporation finally decided to proceed with the erection of dwellings. Plans were prepared by Mr. Clement Dunscombe, then city engineer of Liverpool, for what are known as the "Victoria Square artisans' dwellings." Sketches of these are shown, as well as a ground plan of the site, including the adjacent property which was expropriated at the same time (plans Nos. 31 A, 31 B, and 31 C).

The lot upon which the buildings have been constructed is in the shape of a quadrangle, fronting on four streets, namely, 321 feet on McKee street, 285 feet on Lawrence street, 180 feet on Cazneau street, and 390 feet on Juvenal street.

The total area of the lot is 82,755 square feet. Of this 35,316 square feet, or less than 43 per cent, have been built upon. Five blocks of buildings are erected around the outside of the lot, leaving an open space in the form of a courtyard in the center, with five passages leading to it. The court is paved with Portland cement concrete, and given up entirely to the free use of occupants. No part of it is covered, but it serves very largely as a playground for children.



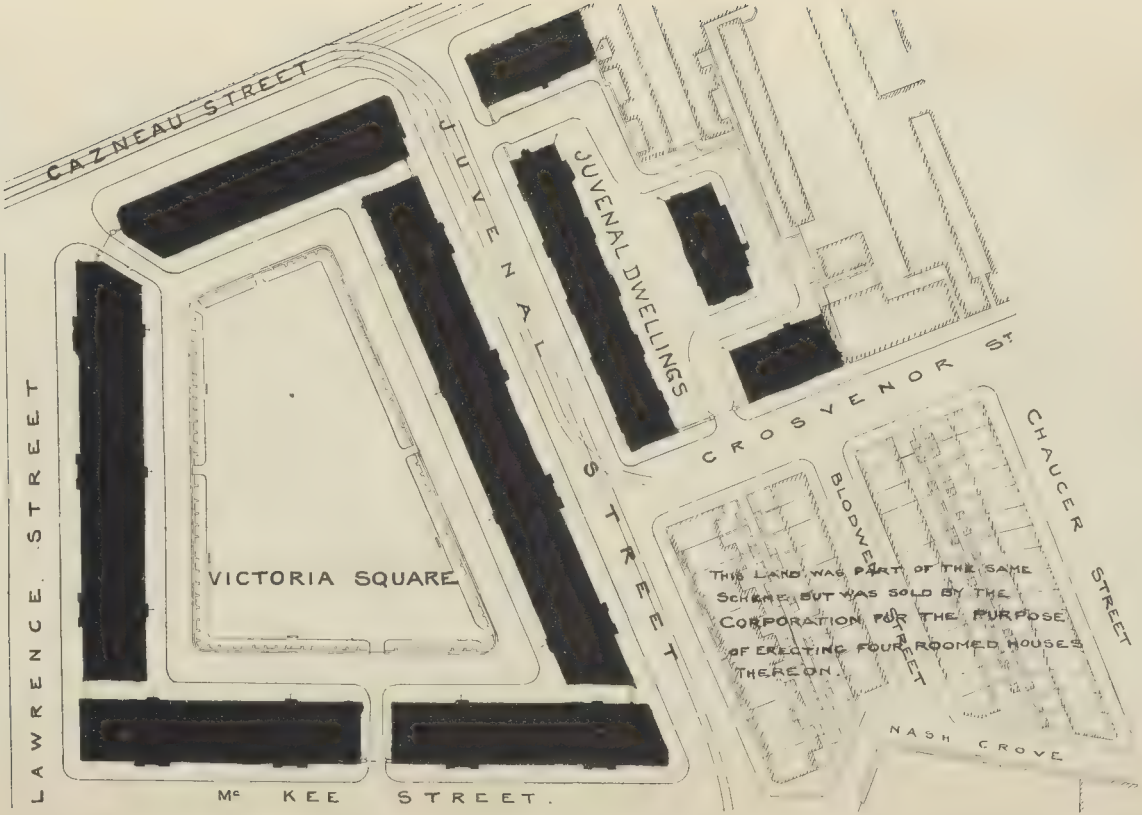
VICTORIA SQUARE ARTISANS' DWELLINGS, LIVERPOOL, ENGLAND -STREET VIEW.

PLAN NO. 31 A.



VICTORIA SQUARE ARTISANS' DWELLINGS, LIVERPOOL, ENGLAND—QUADRANGLE VIEW.

PLAN NO. 31 B.



VICTORIA SQUARE ARTISANS' DWELLINGS AND JUVENAL BUILDINGS, LIVERPOOL, ENGLAND PLAN OF SITE.

PLAN No. 31 c.

The buildings are of five stories, and are 66 feet high. They are constructed of brick. The thickness of the exterior walls is 18 inches to the fourth floor, and then from 14 inches to 9 inches at the top. The roofing is of Welsh slate, and the staircases are of stone and concrete. Party walls divide the five blocks into thirteen sections, so that fire can not spread from one to the other. No wood is used in the hallways or staircases. In the rooms the floors are of wood, but they are specially constructed so as to prevent the spread of fire. There are no fire escapes. There is neither cellar nor basement to the buildings. A space of 4 feet is left between the ground floor and the ground level, with openings in front and rear for ventilation. The entire area occupied by the buildings is covered with a layer of Portland cement concrete averaging 9 inches in thickness. The footpaths and roadways inside and the streets outside have 6-inch foundations of Portland cement concrete so as to make the site practically impervious to moisture and to prevent dampness.

There are thirteen staircases. The landings of the stairs are open to the quadrangle front for their entire height, and project from the main building, forming a balcony protected by a wrought iron railing. The stairs and corridors are lighted by these openings and by the windows of the sculleries, and through ventilation from front to back of each dwelling is thus afforded. The floors of laundries, sculleries, corridors, and water-closets are of Portland cement concrete, and the stairs and landings are of stone. There is a granolithic washable dado, finished in terra cotta color, for a height of 4 feet round the staircases and corridors, above which the walls are plastered and colored in washable material of a suitable tint. The walls of laundries and water-closets are fair-pointed and lime-whitened. The corridors leading to the dwellings are 35 feet long, 4 feet wide, and 9 feet in height. Extensions (lobbies) on both sides of the laundries leading to the sculleries and water-closets are each 12 feet long and 5 feet wide. The landings are 8 feet wide and the steps 3½ feet wide. Walls extend on both sides of each staircase, there being no banister. But one door in each lodging opens directly upon the hallway. No special provisions exist to prevent the promiscuous mingling of occupants on stairways and landings or in the corridors. Independence and isolation of the individual family are thought to be sufficiently provided for in the small number of persons who find entrance to their dwellings from each landing. Every room communicates directly, either by doors or windows, with the open air. Adequate provision has been made for the admission of fresh air through ventilators in the external walls and in the corridors, and for the passing out of foul air through flues in chimney breasts fitted with mica flap ventilators. At the back of the fire grate a hot air chamber has been constructed, which is supplied with cold, fresh air through perforated terra cotta bricks fixed in the external walls, and thence through a cavity formed in walls leading to the air chamber. The air

when warmed passes through pipes leading to the living rooms and bedrooms, the supply being regulated by cast iron hit-and-miss ventilators placed in the walls of these rooms. Ventilation of the quadrangle is assured by the five passages which separate the buildings into as many distinct blocks and allow the free passage of air through the court from all directions.

Two water-closets are placed on each floor, for the joint use of four tenements. They are inside the building, but entirely disconnected from the dwellings. The water-closets are fitted with glazed bowls of the best construction. They have adequate provisions for flushing, and are provided with cisterns for preventing waste of water. They are entered from the lobbies and are adjacent to the sculleries. They project slightly beyond the main building line. They have constant through ventilation and windows are pivot hung.

The sewers in the streets fronting the buildings are 3 feet by 1 foot 10 inches in size and are constructed of brick. They are thoroughly ventilated at frequent intervals by means of open grates. Into them run all the waste and soil pipes from the buildings, with the exception of the block fronting on Cazneau street. The drains in the quadrangle are made of glazed earthenware socket pipes 6 inches, 9 inches, and 12 inches in diameter, respectively, and calked and jointed with Portland cement. One of these takes the waste and soil pipes from the closets of the Cazneau street block above referred to and eventually discharges into the main sewer. The others receive only the water from the roofs and surface water from the quadrangle. The former drain is ventilated by a special 6-inch ventilating shaft fixed to the building and discharging well above the roof line, and is furnished at its highest point with an automatic flushing tank of 300 gallons capacity, constructed of brick. The remaining drains in the quadrangle are also ventilated. All of the waste pipes from the buildings are disconnected from the drains, and discharge into the ventilated 4 by 4 inch cast iron pipes attached to the buildings. They are calked and jointed in red lead. These pipes again discharge over the water line of a trapped gully at the foot of same fixed in the footpath within the building line and covered with a grating. The closets discharge into an external 6-inch socketed and lead jointed cast iron soil pipe, with special Y junction cast on of sufficient length to reach inside the wall of the building and receive the outlet from the closet, the joint being made within the wall line. These soil pipes continue above the roof line their full diameter and terminate with a cowl on top; they are supplied with fresh air inlets. Both the siphon and improved flush-out closet are of Bristol glazed ware, the former having an air-tight inspection cover. The waste pipes from the sculleries, sinks, wash troughs, etc., are made entirely of Bristol glazed pipe $1\frac{3}{4}$ inches in diameter, thus dispensing with lead pipes. They are fitted underneath with a siphon of the same material, furnished with an air-tight inspection inlet with the requisite piping, and they dis-

charge outside the building. The public drains are flushed at frequent intervals, and all private drains within the city are flushed twice annually, and oftener on payment of a small fee by the property owners.

Tenants are not restricted in the quantity of water which they may use daily. A constant service supply is laid to every floor of the buildings. The taps in the corridors are provided with half coupling on the nose for hose pipe, rendering them capable of being used in case of fire on any floor. Fire hydrants are also arranged within the quadrangle, and two double drinking fountains are provided. All water for domestic use is drawn directly from the mains. A 500-gallon slate storage cistern, placed in the roof of each building, supplies the 6-gallon flush regulating cisterns fixed over each water-closet. Should the regular supply be cut off for repairs, taps from cisterns are provided on the ground floor, which can be utilized in case of need.

There is no heating of hallways or corridors. Lighting is done by gas and is included in the price of rent. In Liverpool the gas plant is the property of the city. Gas is brought to the buildings through an independent 3-inch cast-iron main leading around the quadrangle. The outlet from the street main leads into the meter house in the basement of the superintendent's building, in which are fixed two 200-light meters discharging into the 3-inch main. The gas is under the control of the superintendent in his general office. Pressure gauges are fixed in his office to facilitate the adjustment of supply, and a ¾-inch by-pass is fixed on the valve to prevent the total extinction of the lights. Branches to each of the thirteen blocks are laid from the main with a stop cock fixed on same on the outside of the building, inclosed in a suitable iron box.

The corridors and sculleries are provided with lanterns of proper design, fixed to the walls, and in each of the living rooms and laundries are ornamental iron pendants with ball joints. Over the entrance of the door of each dwelling a bracket lamp of ornamental design has been placed; there are also lamps at the main entrance, on Cazneau street.

Every precaution is taken to prevent the waste of gas and to insure its economical use. To each of the burners in the corridors, sculleries, and laundries a special cock is fixed, capable only of being opened and shut by a key in the possession of the superintendent; also separate main cocks to the supply pipes leading to each of the tenements and fixed in the corridors. These are also under the control of the superintendent. Governors are fixed to the lights, limiting the consumption to 3 cubic feet per hour of 20-candlepower gas, with the exception of the outside lamps, which are limited to 4 cubic feet per hour.

Washing and drying clothes is done in laundries and not in the lodgings. Each living room has a specially designed cast iron combination mantel and overmantel, and a cooking range fitted with oven, plate rack,and other useful accessories. The fire bars and fall-down bars of the fire grate and draw-out fret are all of wrought iron. Most

of the bedrooms have grates. There is a combination dresser, larder, coal bunker, and closet provided in every living room. In this receptacle there are attached cup rails, small and large cupboards, drawers, etc., and the coal bunker has sliding doors in living rooms and a small door in the corridor through which coal may be delivered. Hat and coat rails are fixed in all the rooms, and in the bedrooms shelving and hanging closets are provided. The larder is fitted with shelves, meat hooks, and hangers, and is ventilated by openings into the corridor filled in with terra cotta ventilators, covered on the inside with perforated zinc. Clothespresses have been provided in nearly all the rooms. Venetian blinds are furnished for all windows. There is an iron balcony facing the court on every floor in each house. The sashes of all the windows throughout open for their entire area. They are divided into three parts, the lower sash being double hung and the upper sash pivot hung. The lower portion of each window is divided into small squares and is glazed with cathedral tinted glass, giving a cheerful appearance and at the same time acting as a shade.

On either side of the laundry on every floor leading immediately from the corridor there is a double sink of Bristol glazed ware, provided with hard wood drainers, with water supply to each. There is one sink for the use of each family. An additional water tap is placed in the corridors on every floor near the sculleries.

The interior of the dwellings is made as attractive and cheerful as possible. The walls of all the rooms are plastered and finished with hygienically prepared calcimine. Around the living room there is a dado of dark tint surmounted by a stenciled border, above which the walls are finished in a lighter color. All of the door furniture and fittings and general ironwork are especially designed and made of malleable iron, the cost of these being less than the commoner furniture generally used. The outer door of each tenement is furnished with a malleable iron knocker representing "The Liver" (which forms part of the corporation crest), the door handle forming a knocker capable of being used by children, and an enameled iron number.

The external construction of the buildings presents a very tasteful appearance. The material used in the construction is Liverpool gray common brick, with red pressed brick arches and window jambs, molded labels over windows, and panels under them, cornices and bands and red pressed brick used sparingly in a few other places. Red terra cotta has been employed in the main entrance, doorways, and dormers. Wrought iron balconies are introduced in connection with the main staircase on each dwelling on the quadrangle side. All windows have Yorkshire stone sills projecting 12 inches from the face of the walls for potted plants or window boxes, each being fitted with neat wrought iron guard rails. The wall surface has been broken by slight projections surmounted by dormers, making the general appearance of the buildings, viewed from any position, most pleasing to the eye. The

extra cost incurred by this mode of treating the elevations, by the introduction of terra cotta, etc., over elevations of the plainest character is inappreciable in so extensive a block, while the advantage in departing from the general conventional treatment of this class of dwellings is apparent.

The Victoria Square artisans' dwellings contain 21 one-room, 164 two-room, and 86 three-room tenements. The superintendent has a four-room apartment for his own use, and there are 12 shops. The one-room tenements are 12 feet by 12 feet. In the two-room tenements the living room is 13 feet by 12 feet 4 inches, and the bedroom 15 feet 3 inches by 9 feet 7 inches. In the three-room tenements the living room is 13 feet by 12 feet 4 inches, and one bedroom 15 feet 3 inches by 9 feet 7 inches, while the other bedroom is 13 feet by 8 feet 6 inches. The height of ceilings is 9 feet throughout. These measurements are exclusive of sculleries, laundries, and water-closets. The bedrooms are capable of being divided into two parts by a movable screen with separate entrances to each half. The object is to separate the sexes when the children of the family have grown to manhood or womanhood. The screens, however, are not very often used. The air space of one-room tenements is 1,296 cubic feet; of two-room tenements, 2,757 cubic feet; of three-room tenements, 3,751½ cubic feet.

Two hundred and sixty-six families occupied these buildings during the last fiscal year. The population housed was 986. Taking, then, the total measurements of the inside of dwellings alone, each inhabitant was allowed, on the average, 813 cubic feet.

The death rate among the inhabitants of the Victoria Square artisans' dwellings and the Juvenal buildings, which are situated just across the street and belong, likewise, to the corporation, averaged during the last three fiscal years 17.5 per 1,000. The average death rate of the inhabitants of the ward in which these buildings are situated was 32 per 1,000, while that of the whole city was 26 per 1,000. It will be noted that the death rate in these model tenements was over 45 per cent less than that of the ward in which they are situated. Records of births and criminal convictions were not obtainable.

The Victoria Square buildings were opened for habitation December 7, 1885. The estimated original cost of the lot was £10,125 ($49,273.31), and of the buildings £58,000 ($282,257). The total sum received for rentals during the last fiscal year (1893) was £2,825 ($13,747.86). The rental of one-room tenements is 2s. (49 cents) per week, including gas-lighting, water, and all conveniences. Two-room tenements in the first three stories rent for 4s. 3d. ($1.03) per week, and for 3s. 6d. (85 cents) per week on the two upper floors. Three-room tenements similarly situated rent for 5s. 6d. and 5s. ($1.34 and $1.22) per week, respectively. A shop rents for £25 ($121.66) per annum.

The corporation of Liverpool has more recently erected other laborers' dwellings. These are known as the Juvenal buildings, and com-

prise four large blocks erected on land adjoining Victoria Square. The plot is irregular in shape. Its contour and the manner in which the buildings have been placed on it are represented in the ground plan previously shown (plan No. 31 C).

The total area is 22,842 square feet; 9,881¾ square feet, or a little over 43 per cent, have been built upon. The open space is in the form of a courtyard and private ways. It is paved with asphalt, and surrendered entirely to the free use of occupants.

The four buildings erected upon this lot are known, respectively, as the Juvenal, the Back Juvenal, the Grosvenor, and the Cazneau. All are four stories high except the Back Juvenal building, which has three stories. The first three are 51 feet and the last 41 feet high. Brick has been used as the material of construction. The thickness of the exterior walls is 14 inches at the bottom and 9 inches at the top. The roof is made of asphalt and is used for drying clothes. The laundries are on the roof, and children are permitted to play outside while their mothers are occupied with washing within. A 5-foot brick wall surrounds the roof to prevent the children falling off.

In the Juvenal buildings, which are the largest of this group, the hallways are 8 feet wide and 9 feet 3 inches high. The staircases are each 3 feet wide. They are in the interior. The walls of hallways and staircases are covered with Portland cement to a height of 4 feet 6 inches, and above that they are plastered. The steps and halfway landings are of stone, and the main landings or hallway floors are of cement. Two tenements open on each staircase. At each halfway landing a door opens to an iron balcony, by which the water-closet and dust shoots are reached. A high iron railing surrounds the balcony. Along one side of the stairway an iron banister has been placed. In the Cazneau, Grosvenor, and Back Juvenal buildings the walls of the hallways and staircases are lined with brown glazed brick to a height of 4 feet 6 inches, and above that with white glazed brick. The steps, landings, and halfway landings are of concrete. The hallways or landings are 8 feet 8 inches and 9 feet 3 inches high. The staircases are 3 feet 10 inches wide. Both sides of each staircase are walled, there being no banisters as in the case of the Juvenal building. As a rule, four tenements open to each staircase. There is no inflammable material used anywhere on the staircases or in the hallways, except the wood of which the doors and door frames are constructed.

In one case, that of the Back Juvenal building, a narrow corridor extends along the middle of the building connecting single-room tenements with the staircase. This passage is dark and takes up space which might have been utilized for increasing the size of the rooms. Otherwise there seems to be no waste space anywhere in the building. All rooms opening to one staircase are separated from all others by fire walls, so that fire can not spread over the whole of any one block. No fire escapes have been attached to the buildings. There are no

cellars or basements, but there is a space of 18 inches between the ground floor and the ground level. The latter is paved with asphalt in order to prevent dampness. Only one door in each tenement opens directly upon the stairway or hallway. There are no special arrangements designed to prevent promiscuous mingling of occupants in the hallways or corridors or for securing further independence and isolation of individual families. Every room communicates directly, either by doors or windows, with the open air. Fresh air is admitted through ventilators in the external walls and corridors, and foul air escapes through openings in chimney breasts fitted with mica flap ventilators. The buildings are so arranged and separated from each other by courts and open passages that there is free circulation of air on all sides. Generally two families use the same water-closet. In some cases, where there are single-room tenements, three families use one. The water-closets, although in the building, are reached from the outside by means of balconies. They are thoroughly disconnected from the living rooms. The Bristol glazed flush-out closets of the best construction, with waste water preventing cisterns, are in use. Practically the same dispositions have been made in relation to plumbing and sewerage as have already been described in detail in connection with the Victoria Square dwellings. The water supply per lodging is unlimited.

Gas is furnished in all the living rooms. Lighting is included in the price of rent in the Juvenal as in the Victoria Square buildings. Its estimated cost is 6d. (12 cents) per week. In the Cazneau, Back Juvenal, and Grosvenor buildings automatic gas meters are used, by which the dropping of a penny in a slot turns on a certain quantity of lighting material.

The interior of the rooms is rather plain, the walls being simply whitened. Some attention has been paid to exterior decoration, such as the use of red pressed brick for arches and window jambs, as well as cornices and other slight ornamentation. These buildings do not by any means present the same tasteful appearance as the Victoria Square dwellings.

One hundred and one families inhabited these tenements during the year for which returns were available. The total number of persons was 350. Reckoning simply the interior of dwellings, a space of 736 cubic feet represents the average accorded each individual.

The buildings contain 45 one-room, 54 two-room, and 2 three-room tenements. The living rooms in one-room tenements vary from 12 feet 3 inches by 9 feet 1 inch to 15 feet 3 inches by 14 feet. In two-room tenements the living rooms vary from 12 feet by 10 feet 9 inches to 16 feet 6 inches by 12 feet 9 inches. Bedrooms vary from 13 feet 9 inches by 12 feet to 16 feet 3 inches by 12 feet 9 inches. In three-room tenements the living rooms are 14 feet by 12 feet 3 inches, the bedrooms 14 feet by 11 feet and 15 feet 1 inch by 14 feet, respectively. The height of all rooms is 9 feet 4 inches.

The original cost of the lot is estimated at £3,045 ($14,818.49) and the cost of the buildings at £13,100 ($63,751.15). The total sum received for rentals during the fiscal year 1893 was £807 ($3,927.27). One-room tenements rent for 2s. 9d. (67 cents) per week in the first story, 2s. 6d. (61 cents) in the second, 2s. 3d. to 2s. 6d. (55 to 61 cents) in the third, and 2s. to 2s. 6d. (49 to 61 cents) in the fourth. The price of two-room tenements varies from 4s. to 5s. 3d. (97 cents to $1.28) on the first and second floors, and from 3s. 9d. to 4s. 9d. (91 cents to $1.16) on the third floor. Three-room tenements rent for 5s. 6d. ($1.34) per week. One three-room tenement and store rent for £30 ($146) per annum. These rentals include gas and water.

The first model tenements, known as the "Saint Martin's cottages," built by the corporation of Liverpool were opened for habitation in 1869.

The money necessary for purchasing the land and building the Victoria Square artisans' dwellings and the Juvenal laborers' dwellings was obtained by taxation and loan, as provided under the artisans' and laborers' dwellings act of 1875. No reserve has been set aside. The average annual per cent of net profits on operations since the beginning has been, from the Saint Martin's cottages, 3½ per cent; the Juvenal buildings, 4 per cent; and the Victoria Square buildings, 2½ per cent. The total sum received for rent from all the buildings during the last fiscal year (1893) was £4,762 ($23,174.27). The per cent of unoccupied tenements was 2 per cent in Victoria Square, 1 per cent in the Juvenal dwellings, and 7 per cent in Saint Martin's cottages. Rents are paid weekly, and are collected by the resident superintendent. One week's notice is required from tenants of intention to move. One to four weeks' arrearages are allowed, according to the circumstances of the case. The total sum lost during the fiscal year at the Victoria and Juvenal blocks from arrearages was £171 ($832.17). This includes arrearages carried forward. These are rarely lost; in fact the actual experience of Victoria Square and Juvenal dwellings from the year 1885 to the end of 1893 for the cottages alone was £27,416 ($133,419.96) collected, while the bad debts actually irrecoverable by the corporation amounted to only £158 ($768.91) during the same period. Rentals have neither advanced nor declined since the property was opened for habitation, and the charges are about the same as those which obtain in the neighborhood.

A census showing occupations and earnings of heads of families reveals the following facts:

OCCUPATIONS AND EARNINGS OF HEADS OF FAMILIES IN THE MUNICIPAL MODEL BUILDINGS, LIVERPOOL.

Occupation.	Number.	Average weekly earnings.
Artisans	106	$6.81
Unskilled laborers	225	4.62
Not specified (widows and spinsters)	40	2.92

Probably 15 per cent represents the proportion of earnings of heads of families paid as rent in these dwellings. The artisans are mainly boiler makers, joiners, painters, plumbers, plasterers, and fitters. The unskilled laborers comprise carters, draymen, lamplighters, sugar refinery and warehouse employees, dock laborers, and porters. About 200 heads of families occupying these buildings live less than half a mile from their places of work. One hundred and seventy work from one-half to one mile distant, and pay 2d. (4 cents) for a round trip if they take the street car. Usually they walk.

There are no annexes in the form of bread ovens, libraries, reading rooms, parlors, or halls for social or musical meetings. The model buildings are supervised by one resident superintendent for the Saint Martin's cottages and one for the Victoria and Juvenal buildings. These transact all minor business between the corporation and the tenants, collect rents, recommend repairs, etc. The contract of tenancy is signed by the tenant and the city treasurer. The latter has charge of all the financial business relating to the buildings, keeps account of rents received, expenses paid, etc. The city surveyor looks after repairs and the general condition of the buildings, the grounds, etc. The superintendent reports either to the city surveyor or city treasurer, according to the nature of the subject dealt with. The buildings were not constructed by contractors. It is stated that they can be built more cheaply when the city employs the workmen, purchases the material, and supervises construction with its own clerk of works.

One-room tenements are necessary for single women—widows and spinsters—who can not afford to pay more than 2s. (49 cents) per week. There is no need of larger tenements than those of three rooms, because if people can afford to occupy four or more rooms they belong to the class above that for which the municipal authorities wish to provide accommodation.

Tenants, as a rule, do not find fault with the regulations. Those who are worthy and desirable appreciate cleanliness and order, and are entitled to have it. They know that the regulations are made for their benefit. Whenever persons apply for rooms, before they obtain them they are visited by the superintendent, who notes whether they are desirable or not, estimates the habits and characteristics of the family, and acts accordingly. No inquiry is made, however, as to their earnings. Whenever rooms are vacant the fact is announced on a small blackboard which is placed at the main entrance. Rooms are painted and the walls cleaned or whitened once in two years, as a rule. When tenements are vacated they may be put in order at more frequent intervals, at the discretion of the superintendent.

In private buildings in the neighborhood four rooms are sometimes rented at 6s. ($1.46) per week, and the owners sometimes make 10 per cent on the money invested. These buildings are constructed of the cheapest material. Still, people often prefer four rooms of this kind to the three-room tenements in the Victoria Square buildings at 5s. 6d.

($1.34) per week, including gas. Therefore there is more difficulty in renting these three-room tenements than the others.

The pressed brick used in the construction of the buildings cost 40s. ($9.73) per 1,000, the common brick 21s. ($5.11), and the glazed brick from 80s. to 100s. ($19.47 to $24.33) per 1,000. These buildings have cost the taxpayers 1 half-penny (1 cent) in the pound ($4.87).

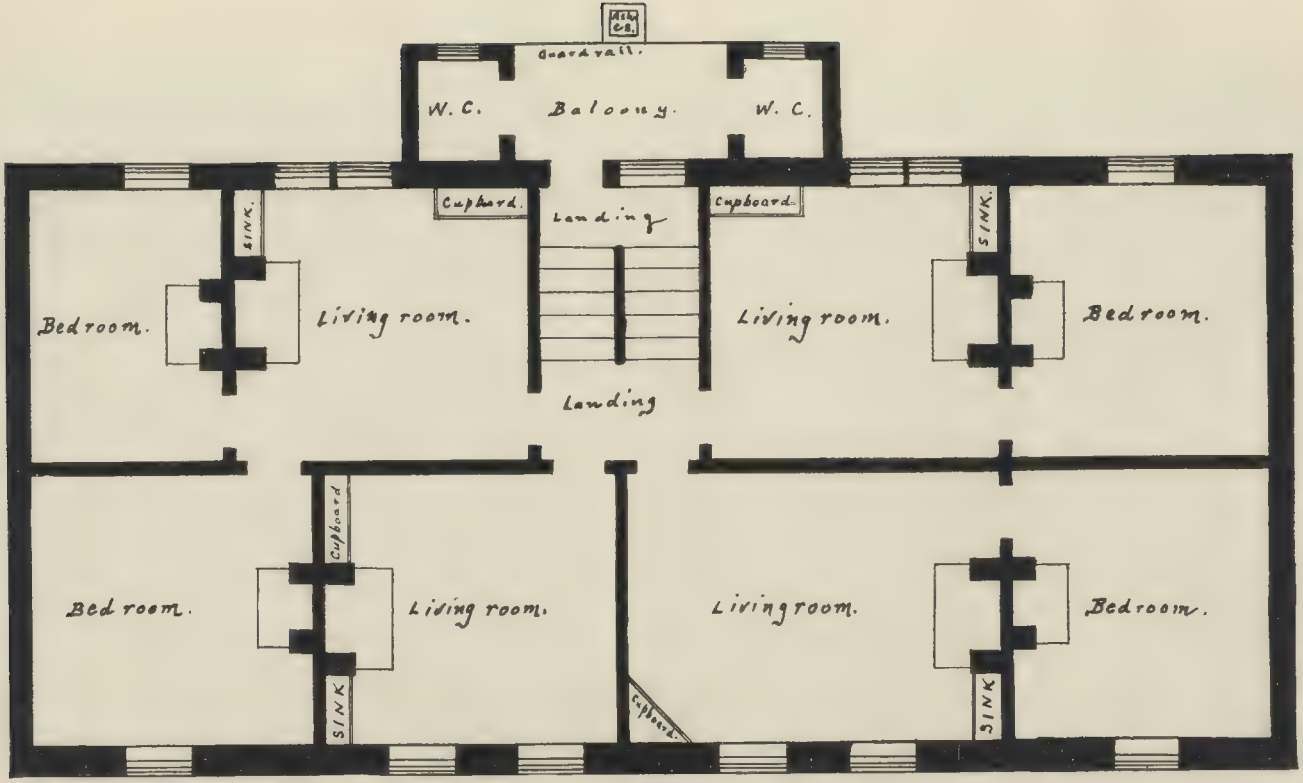
Mr. Turton, the deputy corporation surveyor, has very clear views as to what constitutes model tenements, and he is quite sure that they can be constructed so as to pay 4 per cent net on capital invested. A sketch of his proposed plan (plan No. 32) is shown.

He starts out with the proposition that each tenement should be self-contained, and with water inside. The relative disposition of the staircase and tenements should not necessitate internal hallways. The doors of all tenements should be as near as possible to the staircase, for in this way space would be economized to the utmost. Each class of tenements, namely, one, two, and three room tenements, should be found on every landing. All living rooms should have double windows. The water-closets and dust shoots should be in an extension of the building and be reached from the outside by means of balconies on each halfway landing. Such a building can be built three stories high, with glazed brick in the hallways and staircases, at 4 per cent profit on capital. The following is the calculation:

Allowing 520 square yards for each building, about one-third of the space to be taken up with the building and the rest left open, at 15s. ($3.6499) per square yard	$1,897.94
Cost of building	6,667.11
Total cost	8,565.05
Income, taken at the very lowest rental—	
3 one-room tenements, at 2s. ($0.4867) per week	1.46
6 two-room tenements, at 3s. 3d. ($0.7908) per week	4.74
3 three-room tenements, at 4s. 6d. ($1.095) per week	3.29
Total income per week	9.49
Total income per annum	493.48

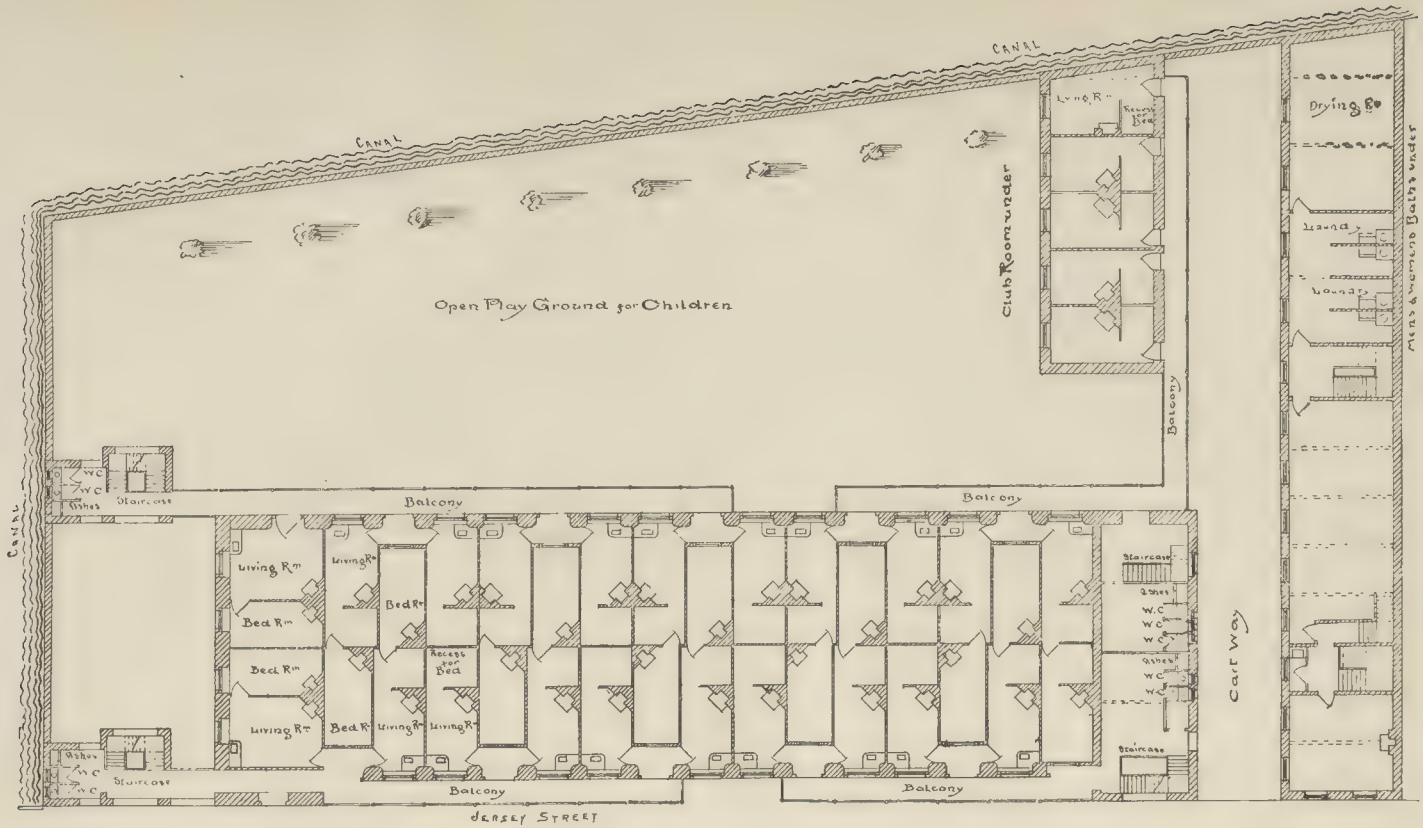
Deducting 30 per cent ($148.04) of the income for outgoings per annum, the net income is $345.44, which is about 4 per cent on the total investment.

The corporation of Liverpool purchases insanitary dwellings, such as back-to-back dwellings and houses, and demolishes them. An attempt is made to treat with the proprietor as to the price to be paid, and if this fails the matter is decided by arbitration. The purchase price is fixed at the amount of nine years' rental after deducting 50 per cent from the gross sum for taxes, repairs, etc. The vacant land, after the buildings are demolished, is sold, and the houses afterwards built thereon are subject to the regulations contained in the by-laws. In cases of this kind the city generally buys and sells the freehold. The building by-laws of Liverpool now compel speculative builders to construct proper sanitary dwellings.



PROPOSED PLAN FOR MODEL TENEMENTS, LIVERPOOL, ENGLAND.

PLAN NO. 32.



BLOCK BUILDINGS OF THE MANCHESTER LABORERS' DWELLINGS COMPANY, MANCHESTER, ENGLAND.

PLAN NO. 33.

MANCHESTER LABORERS' DWELLINGS COMPANY, MANCHESTER.

In consequence of some reports published by Dr. Leigh, late medical officer of health, in 1889, describing the slums of the cotton metropolis, a great deal of interest was aroused in sanitary matters. The successor to the office, Dr. Tatham, continued to present further facts, and Mr. Maycock, a well-known architect, visited Liverpool and other places in order to satisfy himself as to the practicability and financial soundness of model schemes. His view of the case was that only under exceptional conditions could new buildings be erected in Manchester, and he therefore suggested that an old building, if such could be found, should be remodeled and made to serve the purpose. The Manchester Laborers' Dwellings Company, limited, was the result. Some unused buildings in Ancoats, known as the Jersey street mills, were bought at a reasonable price, and their conversion into dwellings was practically the first step of the company. Predictions were freely indulged in that a type of dwellings containing so many stories would not be acceptable to the Manchester working people, and that tenants could not be found to climb six or seven flights of stairs. However, these expectations were not fulfilled, and the single-room tenements on the top floor were the first to be taken. When the premises were formally opened there was not a single tenement of this character to be had.

The site of the buildings was well chosen, there being large open spaces on every side. It is at the junction of two canals, and there is a large uncovered area at the back, now utilized as a playground for children, which will soon, by the aid of a special fund, be furnished with swings and other apparatus for physical recreation. The total area of the property is 28,202 square feet, about 44 per cent of which has been covered with buildings. The courtyard is covered with cinders, and there is besides a stone paved walk. The principal building contains seven stories, and the smaller five stories. Brick is the material of construction. The roofing is of slate, and the stairways are of concrete and iron. The floors are concrete laid upon brick vaulting, so that every arrangement has been made to secure fireproof quality. There is a cellar, which is likewise concreted, and in which there has been placed a large boiler for the purpose of supplying hot water. The accompanying plan (plan No. 33) shows the position of the buildings and the arrangement of rooms.

There are no interior corridors or staircases. The stairways, water-closets, and ash shoots are located at the two extreme ends of the buildings, and are separated by heavy brick walls from the rest of the structure. Corridors or balconies run along the entire front and rear outside of the buildings. Tenants reach their apartments either from the front or rear corridor, according to location. The corridors or balconies are separated at the middle house, so that people living in

one-half have no access to the other half. By this arrangement only from four to seven families can use the same corridor. All exterior doors open directly upon the corridors. The latter are open and in full view of the street or court. All two-room tenements have through circulation from front to rear, the windows and doors opening on the street and court. One-room tenements are back-to-back, but as all have ventilators opening to the chimney, it is said that good circulation is obtained. Besides the distribution of chambers in the way already outlined, there are special means of ventilation. The air enters each room at the meeting rail of windows, and the vitiated atmosphere leaves through gratings placed near the ceiling into flues which are carried above the roof. Stairways are partly open, so that they, also, have through circulation.

One-room tenements are rented only to families consisting of husband, wife, and two children under 5 years of age. These and the two-room tenements have partitioned recesses for placing beds, so that a fair degree of privacy may be secured.

Water-closets have been provided in the ratio of one to every two families. They are situated outside the buildings. The bowls are of earthenware, and the seat is hinged and weighted at the back so that it automatically rises when not in use; the bowl can then be utilized as a urinal without danger to cleanliness. Flushing takes place automatically as soon as the wooden seat rises. Not only are the soil pipes carried above the roof full size, but each trap is separately ventilated. Drains are ventilated at their highest points, and at intervals manholes are placed so that the interior between the manholes may be made visible to the eye, and the position of any stoppage immediately ascertained. Indeed, every detail of arrangement has been subjected to the approval of the municipal authorities, and model sanitary conditions have been complied with. Hot and cold water is run to every kitchen, and no extra charge is made for continuous service day and night. Gas is also supplied free of charge, but it is turned off at 11 o'clock each evening. There is a cooking range in each tenement, and a fire grate in each bedroom. For fuel storage a box has been placed in every tenement, which may be filled from the outside through a special opening in the wall. An ash shoot is provided on each landing, and the refuse is removed daily by the company. A cupboard has been placed in each kitchen, and clothes hooks have been provided in lieu of closets. There are sinks under the hot and cold water taps. Walls are plastered and calcimined with an antiseptic preparation. There are no external decorations, not even window shutters. Laundries, drying rooms, and a drying ground have been provided. The use of the laundry is charged for at the rate of 1d. (2 cents) per hour. There are also baths, provided with hot and cold water, for the use of which a fee of 1d. (2 cents) is charged.

The buildings have been divided into 147 tenements—39 of which are single-room tenements and the remainder tenements of two rooms. Single-room tenements contain about 1,700 cubic feet; the largest size two-room tenements contain 3,677 cubic feet, and the smallest size two-room tenements contain 3,092 cubic feet. Ceilings are 9 feet 6 inches high.

One-room tenements, with recesses for bed, rent for 3s. (73 cents) per week in the fourth story, and 2s. (49 cents) per week in the seventh story. Two-room tenements, with recesses for bed, rent from 3s. 9d. to 4s. 6d. (91 cents to $1.10) per week in the first three stories, from 3s. 6d. to 4s. 3d. (85 cents to $1.03) in the fourth story, from 3s. 3d. to 4s. (79 cents to 97 cents) in the fifth story, from 3s. 3d. to 3s. 9d. (79 cents to 91 cents) in the sixth story, and from 2s. 9d. to 3s. 3d. (67 cents to 79 cents) in the seventh story. Two-room tenements, having two bed recesses, rent for 4s. 9d. ($1.16) per week in the first three stories, 4s. 6d. ($1.10) in the fourth story, 4s. 3d. ($1.03) in the fifth story, 4s. (97 cents) in the sixth story, and 3s. 9d. (91 cents) in the seventh story. The total sum received for rent during the fiscal year ending October 31, 1893, was £984 11s. 6d. ($4,791.43). There had been, perhaps, an average population of 500 in the buildings, among which there had been but two deaths during the first eight months after opening, both infants under two months old. There had been five births during the same period, all legitimate.

The buildings were opened for habitation March 28, 1892. The estimated value of the land was £3,500 ($17,032.75), while the cost of the buildings ready for habitation, excluding the price of land, was £15,582 14s. 8d. ($75,833.37). The capital stock of the company subscribed and paid up to October 31, 1893, was £10,840 ($52,752.86). The nominal capital is £20,000 ($97,330). The company was founded for the purpose of providing good accommodation for a neglected class, rather than for earning money for the stockholders. At the same time, financial considerations are not lost sight of, and it is expected that the investment will be made to pay in a commercial as well as in a philanthropic sense.

A statement from the president of the corporation, Mr. Henry Simon, under date of April 2, 1894, is as follows:

I may say that so far we are, financially, not successful. We are not earning even a small interest, partly on account of the estimates having been rather lower than they ought to have been, and capital expenditure consequently larger; especially, however, because we are addressing ourselves to the lowest stratum of work people, who, whenever out of work, have not money to pay their rent. We have therefore continually a certain amount of houses or lodgings empty, or occupied by people who can not pay rent and can not be got out under the English law as expeditiously as desirable. Large laborers' dwellings, with latest improvements and almost regardless of capital expenditure, are being got ready in the same neighborhood by the city authorities. This may further adversely influence our financial situation.

Rents are paid weekly, in advance, to the resident superintendent. Seven days' notice of intention to leave is required. There is no definite practice in relation to arrearages, circumstances governing each case. Not considering the cost of hot water supply and gas, rents are about 6d. (12 cents) per week cheaper than for similar accommodation in the neighborhood.

Clubrooms for both men and women have been fitted up for the use of tenants. Outside help in the way of furnishing social entertainments and lectures comes from the board of directors and their friends, and expenses are usually defrayed from a special fund. Newspapers and games are a permanent feature of these institutions. The social features that have been provided in connection with the company's housing activities are well patronized.

IMPROVED INDUSTRIAL COMPANY, NEWCASTLE-UPON-TYNE.

A company was formed in 1870 called the Improved Industrial Company, in which individual members of the city corporation were interested as shareholders. The first block of buildings, erected in 1870, consisted of 28 sets of two-room tenements in the front (including two shops), and 12 one-room tenements in the rear. The rents of the front tenements range from 3s. 9d. to 4s. 6d. (91 cents to $1.10) per week. The rent of single rooms ranges from 2s. 3d. to 2s. 6d. (55 cents to 61 cents) per week. The rents include gas, water, and use of wash house in the yard. The buildings are four stories high. For nine years the block paid the shareholders 5 per cent.

In 1879 the directors having determined to extend the buildings, erected a structure containing 64 tenements of two rooms each, besides four large shops and a spacious reading and recreation room. About one-half of the sum necessary, namely, £8,000 ($38,932), was borrowed from the public works loan commissioners and is repayable in equal half-yearly installments extending over a period of forty years with interest on the amount due at 4 per cent. This step somewhat crippled the financial success of the company, and since then the dividends to stockholders have been less than previously.

GLASGOW WORKMEN'S DWELLINGS COMPANY, GLASGOW.

This company was incorporated April 9, 1890. Its objects are: (1) To provide for workingmen healthy and comfortable dwellings and accessories, including shop, store, wash house, laundry, kitchen, reading and recreation room, and other accommodations. (2) To acquire houses, buildings, and lands, absolutely or conditionally, with power to appropriate portions of such lands for roads, streets, squares, gardens, and for drying, pleasure, and recreation grounds. (3) To pull down, alter, construct, and erect buildings and accessories, etc.

The dividend is limited to 5 per cent per annum. Any surplus profit is applied to the furtherance of the company's objects, to create a reserve

fund, to equalize dividends, and to cover depreciation. This company is one of the outgrowths of a lecture delivered by Dr. James B. Russell, medical officer of health for Glasgow, a few years ago. In the course of the lecture above referred to Dr. Russell said:

Percentages, though an accurate, are but a feeble mode of expression for facts regarding men and women like ourselves. I have told you that in 1881 the population of Glasgow was 511,520 persons, and that of those 25 per cent lived in one room, and 45 per cent in two-room houses; but what does that mean? It means that 126,000 persons live in those one-room, and 228,000 in those two-room houses. But is that all I can say? I might throw down that statement before you, and ask you to imagine yourselves with all your appetites and passions, your bodily necessities and functions, your feelings of modesty, your sense of propriety, your births, your sicknesses, your deaths, your children—in short, your lives in the whole round of their relationships with the seen and the unseen, suddenly shriveled and shrunk into such conditions of space. I might ask you, I do ask you, to consider and honestly confess what would be the result to you. * * *

It is those small houses which produce the high death rate of Glasgow. It is those small houses which give to that death rate the striking characteristics of an enormous proportion of deaths in childhood, and of deaths from diseases of the lungs at all ages. * * * There you will find year after year a death rate of 38 per 1,000, while in the districts with larger houses it is only 16 or 17. Of all the children who die in Glasgow before they complete their fifth year 32 per cent die in houses of one apartment; and not 2 per cent in houses of five apartments and upward. There they die and their little bodies are laid on a table or on the dresser, so as to be somewhat out of the way of their brothers and sisters, who play and sleep and eat in their ghastly company. From beginning to rapid ending the lives of these children are short parts in a continuous tragedy. A large proportion enter life by the side door of illegitimacy. One in every five who are born there never see the end of their first year. Of those who so prematurely die, a third have never been seen in their sickness by any doctor. Every year in Glasgow the deaths of from 60 to 70 children under 5 years of age are classified by the registrar-general as due to accident or negligence; and it is wholly in these small houses that such deaths occur. Half of that number are overlain by drunken mothers, others fall over windows and downstairs, are drowned in tubs and pails of water, scalded, or burned, or poisoned with whisky. I can only venture to lift a corner of the curtain which veils the life that is lived in these houses. It is impossible to show you more.

* * * * * * *

The question for us is, What can we do? The solution of the social problem of the age is for us the doing of something here and now.

Mr. John Mann, jr., the active secretary of the corporation, in a memorandum issued to the Glasgow Improvement Trustees in April, 1891, in connection with the company's offer for ground in a certain locality, set forth the principles upon which the company proposed to operate. It was stated that the company was anxious to erect, in the center of the city, simple and sound houses to be let at low enough rent to meet the wants of the struggling laboring class—the unskilled class—and to yield a return of not more than 5 per cent on the cost.

This class is included in the 75,000 inhabitants of ticketed houses in Glasgow, of which there were at that time 23,000. Its chief anxiety was to provide for the tenants of ticketed houses, who were being continually displaced under the operation of sanitary law, as near as possible in the center of the city. The necessities of such people had not been previously ministered to by private enterprise because it was assumed that it could not be made profitable. The earning of the dividend is not so much the object of the company as the erecting of simple, sound, and cheap houses; but unless a reasonable return is obtained upon the capital invested there will be no inducement to undertake the work on commercial lines. It is only upon ordinary commercial lines that the movement for the better housing of the poor will grow and succeed. Otherwise the rehousing of the struggling poor of the city displaced by the advance of sanitary science must be seriously undertaken either (1) by the poor law officials; (2) by the corporation with rate supported dwellings; or (3) by the ratepayers, on purely charitable lines.

The buildings constructed by this company are known as Cathedral Court, and are situated at Rottenrow, Nos. 25 to 33. The buildings were opened in May, 1892. The location is a convenient one for working people. The lot is somewhat irregular in shape. It has a frontage of 80 feet approximately, and a depth of 136 feet. Less than one half of the ground has been built upon. The open space is in the form of a courtyard between the north and south buildings, and a small courtyard south of the block. There are gravel walks on three sides, and the remaining space is laid out with shrubbery, a work due to the Glasgow Kyrle Society. The space is entirely given up to the free use of occupants. The buildings contain five stories and are constructed of rough stone. The thickness of the exterior walls varies from 20 to 16 inches. The flat portion of the roof is covered with concrete and asphalt over iron joists. The sloped portion is covered with timber and slates. Granolithic, resembling red sandstone, is the material of which staircases are made. No other arrangements exist in the buildings to make them fireproof. Galleries on the outside of the buildings leading to the staircases form a sufficient means of escape in case of fire. There is no cellar, but there is a basement in the south block which is to be occupied together with a ground floor by the University Settlement Association.

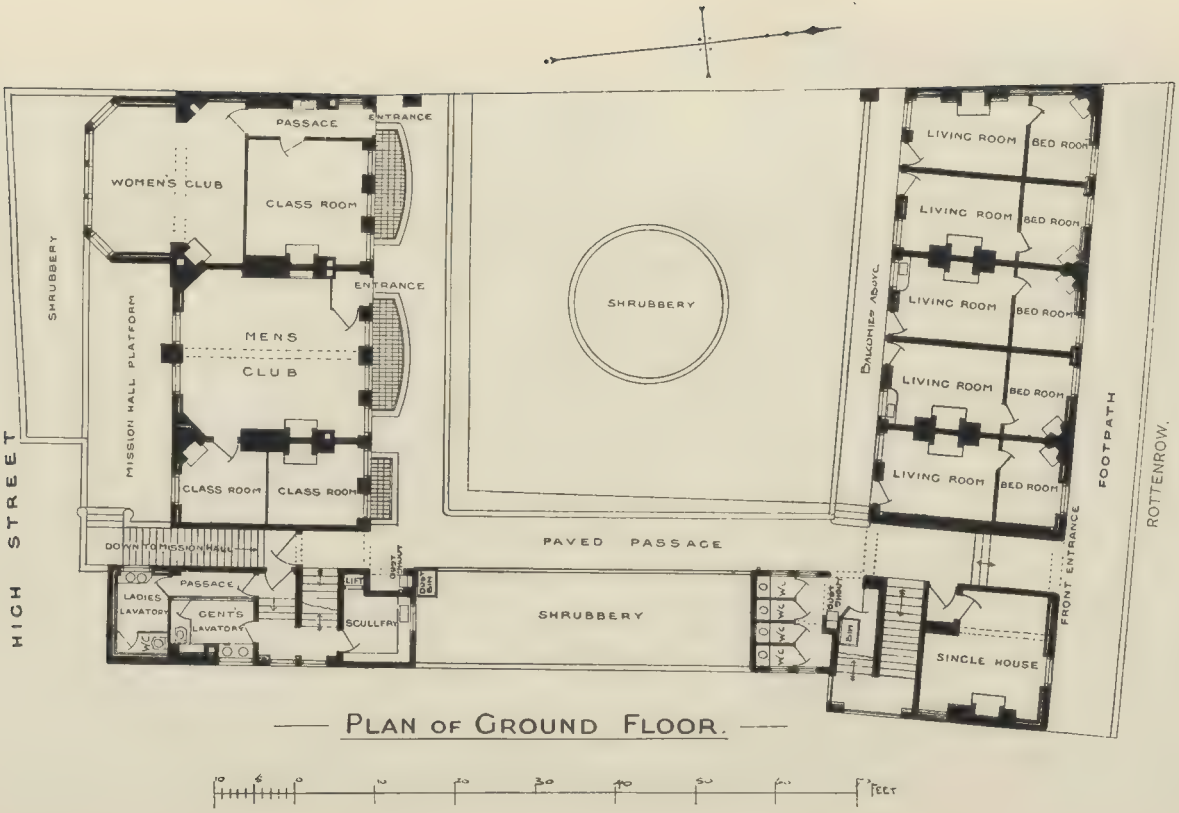
The accompanying plans (plans Nos. 34 A and 34 B), showing the front elevation and the distribution of rooms, will effectively assist the reader in understanding the character of the buildings.

In the interior at one end there is a staircase and gallery 3 feet wide having large openings or windows on two sides and well ventilated. Dwellings are reached from galleries which run along the court side of the building with the exception of two tenements in the north block, which open on the stair landing. All tenants in one building use the



CATHEDRAL COURT, GLASGOW, SCOTLAND.

PLAN NO. 34 A.



PLAN OF GROUND FLOOR.

CATHEDRAL COURT, GLASGOW, SCOTLAND.

PLAN NO. 34 B.

same staircase and all on a single floor use the same gallery The greatest inconvenience of this exterior gallery is that the independence and isolation of the individual family is not so easily secured. Tenants living at the extreme end of the gallery pass directly in front of their neighbors' doors and windows, going to and from the staircase. Still it must be remembered that the aim of the company is to provide for casual workers, and therefore not merely luxuries but many of the costlier desirabilities in construction had to be renounced. The windows open both to the court and to the opposite side of the building, so that through ventilation is secured in each tenement. The windows are double hung. Water-closets are situated on the stair landings and one serves for two families, though outside dwellings are completely isolated. About five persons on the average use the same closet. The overhead self-filling tank with flush-out system is used. Water-closets are properly trapped and soil pipes ventilated. Sewerage pipes are of cast iron. An unlimited supply of water is allowed. Heating is done by ranges and grates. Each kitchen is provided with a cooking range and a coal box. A fireplace has been put in each bedroom. Gas or oil lamps furnish the light. Washing is not permitted in the lodgings. Laundries and drying courts have been constructed on the roof. Dust shafts are the receptacles for ashes and similar waste. The rest is burned. There is a sink with water in the kitchen. Gas pipes have been carried to every room, but tenants must furnish the brackets. In each laundry are six copper boilers and ten tubs with furnaces for heating. An iron bedstead has been provided in every bedroom. Externally the buildings, while not displeasing, are devoid of any attempt at decoration. Interior decoration is entirely lacking.

The buildings contain 17 one-room and 41 two-room tenements. The air space of the former class of tenements is 1,200 cubic feet and of the latter 1,800 cubic feet. The living rooms are 13 feet 4 inches by 10 feet in the one room and 13 by 10 feet in the two-room tenements, and the extra bedrooms in the two-room tenements are 7 by 10 feet. The ceilings are 9 feet high.

The buildings were fully occupied during the last year (1893). No epidemics have taken place in the buildings notwithstanding that there was fever in the surrounding districts. Among the 370 occupants of the different buildings belonging to this company but two persons over 5 years of age died. The tenants have noted an improvement in the health of their children since taking up their residence in these model tenements.

The original cost of the lots was approximately £1,100 ($5,353.15), while the cost of the buildings was £6,528 ($31,768.51).

The rent of the single-room tenements is 1s. 9d. (43 cents) per week, while the price charged for two-room tenements varies from 2s. 6d. to 2s. 8d. (61 to 65 cents) weekly. A bonus of a fortnight's rent each June and December is granted to all who have paid promptly in advance

and kept the rules. The sum returned as a bonus to tenants during one-half of the last fiscal year was £12 5s. 1d. ($59.63). At this rate the bonus would amount to about 7 per cent of the annual rent roll.

The property of the Workmen's Dwellings Company consists of two model and four renovated buildings, as well as a new estate recently purchased. Without counting the last the accommodation furnished consists of 47 one-room and 71 two-room tenements. These are rented only and are not allowed to be purchased by individuals inhabiting them as is the practice in some large cities, notably, Dundee. The authorized share capital is £50,000 ($243,325); £40,780 ($198,455.87) have been subscribed and £10,165 ($49,467.97) called for and paid in. Two and one-half per cent dividend was declared at the end of the fiscal year, on June 30, 1893, but it must be remarked that this is not a fair test of the earning capacity of the company's property. There is every reason to believe that the maximum rate of interest permitted to be paid (5 per cent) will yet be earned. If the balance set aside and not used for dividend purposes is included, 3.1 per cent would represent the net profit the first year. The amount of borrowed capital is £4,100 3s. 8½d. ($19,953.55), only £1,500 ($7,299.75) of which is a bonded debt; the rest is in the form of temporary loans.

The total estimated value of the property owned by the Glasgow Workmen's Dwellings Company, with the exception of the newly acquired estate, is £11,500 ($55,964.75). The total sum received for rent during the last fiscal year (1893) was £742 16s. 6½d. ($3,614.97). The loss of rental resulting from unoccupied lodgings was £5 14s. 1d. ($27.76); £4 14s. 9d. ($23.06) of this latter sum was due to necessary vacancy caused by alterations made in the building. The percentage of unoccupied lodgings during the year was so slight as to make its computation unnecessary. Rents are paid weekly, in advance. Deposit of a sum equal to four weeks' rent has to be made by the tenant upon entering on the occupancy of his apartment. This caution insures the company against damages or loss. Rents are collected by a committee of ladies from the Kyrle Society. The object of the housing branch of this organization in assuming the rent collection is to bring elevating influences to bear upon their clients as well as to render them practical service in other ways.

The efficiency of this rent collection method may be gauged from the fact that the sum lost through nonpayment of arrearages during the last fiscal year was 3s. 2d. (77 cents) out of the total rent roll of £742 16s. 6½d. ($3,614.97). Rents are slightly lower than are charged for similar accommodation in the neighborhood. It is the aim of the company to fix the rents in accordance with prevailing prices. The occupations and earnings of heads of tenant families in the Cathedral

Court property, as revealed by the census taken February 15, 1893, were as follows:

OCCUPATIONS OF HEADS OF FAMILIES IN CATHEDRAL COURT, GLASGOW.

Occupation.	Number.	Occupation.	Number.	Occupation.	Number.
Machinists	3	Church cleaner	1	Paper maker	1
Machine worker	1	Van man	1	Hot presser	1
Waterproof maker	1	Ironworker	1	Joiner	1
Painters	2	Picture-frame maker	1	Charwoman	1
Railroad hand	1	No occupation (invalid)	1	Kitchen maid	1
Dealer	1	No occupation	3	Seamstress	1
Cloth lapper	1	Slater	1	Dressmaker	1
Jacket finisher	1	Carpet designer	1	Ladies' nurses	2
Laborers	2	Pottery workman	1		
Calender man	1	Salesman	1		

The average earnings of these people was about 23s. 6d. ($5.72) weekly. A reference to the rentals shows that, roughly speaking, 10 per cent of the earnings are absorbed in payment of rent. Tenants are not allowed to sublet or receive boarders except under written permission of the company.

Of the Cathedral Court tenants, 2 live under one-half mile from their places of employment, 10 from one-half to one mile, 4 from 1 to 2 miles, 1 7½ miles, and 5 of the remainder from whom facts could be elicited, have no fixed places of work.

The rules are printed in a receipt book given to tenants in which entries of rental payments are made. The most important—items in relation to the deposit, period of payment of rent, notice of removal, arrearages, ejectment, and overcrowding—have already been noted. The remainder has particular reference to damage to property and the utilization of sinks, chimneys, closets, dust shafts, the use of laundries, and infectious diseases. Appurtenances broken must be repaired at the tenant's expense within a week. Stairs, water-closets, and balconies are to be swept daily and washed each Wednesday and Saturday by the tenants of each floor in the order of the numbers of the rooms. Children are not allowed to make a noise on the stairs or balconies or to be in the court after dark. The door leading to the roof is to be constantly closed. The balconies must not be used for drying or hanging out clothes, etc., or for shaking carpets, nor must any article be thrown into the court. A charge of 6d. (12 cents) is made upon every tenant where sinks become choked by reason of any solid matter thrown into them. Tenants are obliged to sweep chimneys in regular turn once every three months. In default the care-taker has the cleaning done at a charge of 6d. (12 cents) to the tenant. For water-closets and dust shafts the following statement is made: Nothing large enough to cause stoppage must be thrown in the closets or dust shafts. Such stoppages entail so much trouble and expense that any tenant causing them will be served with a notice to leave. Cases of infectious diseases must be reported at once to the care-taker. Failure involves immediate notice to leave.

The duties of the care-taker are: (1) To select suitable tenants; (2) to supervise the building, to prevent overcrowding and subletting, and enforce order and quietness; (3) to see that proper use is made of the water supply, water-closets, wash houses, dust shafts, etc.; (4) to enforce strictly cleansing of stairs, balconies, courts, etc.; (5) to report infectious diseases; (6) to make minor repairs.

The ground floor of the buildings contains large, airy rooms which are elaborately fitted up for the use of the University Settlement Association, which now makes this place its headquarters and does similar work to that accomplished at Toynbee Hall in London. The participants are mostly students of the Glasgow University. On the second floor of the same building rooms are being fitted up for industrial classes for women. In this way tenants will be benefited by the work of the society and be enabled to participate in the benefits of association in clubs.

The rent paid by the University Settlement Association for the rooms is £58 ($282.26) annually. A ten years' lease has been taken.

The ladies of the Glasgow Social Union contemplate opening a day nursery in the building for children of the working people, but this step has not yet been definitely decided upon.

The activities of the Workmen's Dwellings Company have not been confined to the provision of new model tenements. It recognized that there was a field for operation in purchasing old property, putting it into thoroughly good sanitary condition, and renting it to individuals with probably lower and more uncertain incomes than those who would likely go into new tenements. Its experience has been very satisfactory with this branch of work so far. Should ultimate success be attained a vast service will have been rendered by this company toward the solution of a very difficult phase of the housing problem. The condition of the George Court property when bought was so filthy and it was so full of vermin that many workingmen refused to work upon it. The buildings were of stone, three stories high, with a courtyard at the rear. The halls originally were very narrow and dark. Large cupboards took up the greater part of the space of the rooms. The walls and floors were filthy, and one privy in the court served for over sixty families. Some of the rooms were too dark and close to be fit for human habitation. All these conditions have been changed and the dwellings rendered cheerful and clean. New floors have been put in everywhere and walls replastered, the woodwork, window sills, etc., repaired and painted, and the large clothespresses have been greatly reduced in size. Water, sinks, ranges, grates, double shelves, cupboards, stands, and coal boxes have been put in all the dwellings. The dark halls have been lighted by means of skylights. Iron beds have been placed in every habitation. Extensions have been built for water-closets, twelve in number, so that not more than four families

will be obliged to use the same one. A laundry for the use of tenants was also constructed in the courtyard. A fireplace was put in each tenement as well as a grate with a small oven.

The buildings were arranged into one and two room tenements, about eight opening to the same corridor. Ceilings are 8½ feet high. In the one-room tenements the average contents of a small size living room is 961 cubic feet, and of a large size room 1,216 cubic feet. In the two-room tenements the front rooms contain about 2,000 cubic feet and back rooms 1,800. The buildings accommodate sixty families. There are 30 one-room and 30 two-room tenements. The average rental for the former is £5 4s. ($25.31) a year and for the latter £7 1s. ($34.31). The original cost of the land and buildings put in habitable condition was £4,340 ($21,120.61).

In 1893 the company purchased and renovated in the same thorough manner four old buildings. They were all opened and quickly rented. The directors of the company expect to realize not less than 4 per cent on houses of this class.

The results of alterations are shown in the following statement of rentals, etc., in these renovated houses:

RENTALS OF HOUSES IN ARDGOWAN PLACE BEFORE AND AFTER ALTERATIONS.

	West building, 30–36.		East building, 29–35.	
	Formerly.	As altered.	Formerly.	As altered.
Rental	$1,445.35	$1,313.96	$1,304.22	$1,440.48
Number of tenements:				
One room	56	28	32	31
Two rooms	4	18	16	16
Total tenements	60	46	48	47
Average rent of one room tenements:				
Net, per week	$0.46	$0.49	$0.46	$0.49
Net, per month	2.01	2.11	1.95	2.11
Net, per annum	24.09	25.31	23.36	25.31
Average rent of two-room tenements:				
Net, per week	.67	.67	.59	.73
Net, per month	2.92	2.92	2.56	3.16
Net, per annum	35.04	35.04	40.39	37.96
Average increase in cubic capacity (feet):				
One-room tenements		13		91
Two-room tenements		239		21
Average legal number inmates:				
One-room tenements	2⅓	2⅓	2⅓	3
Two-room tenements	5¼	5½	5½	5½

The average earnings of each household when fully employed are about 22s. ($5.35) per week.

The experience of this corporation seems to indicate that better economic results will attend the purchase and renovation of slum property than the building of new model tenements. There may possibly be some local reasons to account for this. Indeed, Dr. William Smart, one of the directors, stated at the last annual meeting that a great deal of property in Glasgow had been erected by speculative builders, had been bonded to the last penny, and had then been sold for the price of the bonds. Accordingly it then yielded a good interest, though the rents were low. This, of course, creates a favorable opportunity for

the alternative operation of the Glasgow Workmen's Dwellings Company's scheme. Whatever may be the effects in this regard it is certain that the beneficent operations of the company have extended to a lower stratum of working people than has usually been reached by model housing agencies. If the purchase and renovation of bad property can be commercially conducted, remodeling housing companies are likely to do far more effective social work than purely model dwellings companies.

MUNICIPAL MODEL DWELLINGS, GLASGOW.

Under the Glasgow improvement act of 1866 the corporation of Glasgow obtained power to deal with a large area of old and insanitary property, chiefly in the crowded parts of the city. The City Improvement Trust has charge of carrying out the provisions of this act. In the course of carrying on the work of the trust a good deal of old property in that part of the city known as "Saltmarket," where the density of population in some parts bore the proportion of 600,000 to the square mile, was expropriated and demolished. The necessity of making some provision for the dispossessed people in this district became apparent, and failing to find purchasers for the land the trustees themselves in 1888 commenced to build model dwellings. The original intention was to make them dwellings for laboring people. It was also intended to erect the plainest style of buildings, without any attempt at ornamentation, so that they might be rented at a comparatively moderate figure. From time to time, however, the committee in charge amended the plans, until the interior arrangement of the buildings has become quite elaborate, although the outside remains plain. The cost of construction reached such a figure that the rent had to be fixed at a price where the lowest classes of the poor found it impossible to pay the prices. The tenants of the Saltmarket model dwellings to-day are, therefore, in the main, artisans in receipt of good wages. Some of them are shopkeepers and clerks, and even a few families are apparently so well off that they can afford to hire servants.

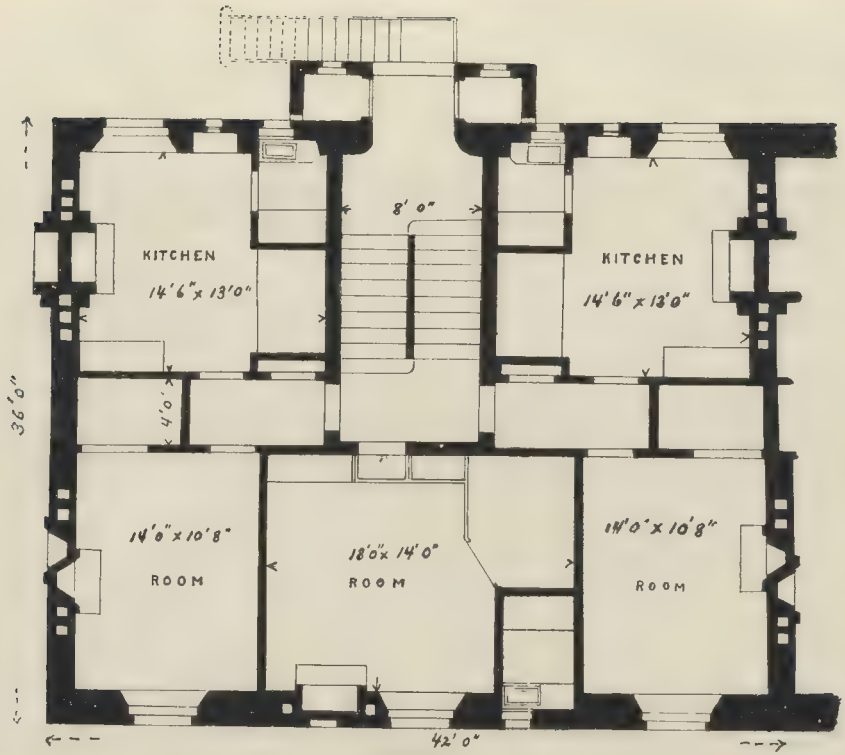
Two groups of this kind of dwellings have been erected, but a third, which is much plainer and less costly, situated across the street, has recently been opened, where rents are very moderate, and the really poor and casual workers may find accommodation within their means. The accompanying plans (plans Nos. 35 A and 35 B) show a section (block 1) of these model dwellings.

The buildings are four stories high, and occupy the entire frontage of the lot. About one-third of the space remains open at the rear, and is paved and utilized as a drying place for clothes and a playground. In Scotland there is great prejudice against the use of any other building material than stone, and consequently these buildings are of that material. The walls are 18 inches thick, and the buildings have been constructed solidly, so there is little danger from fire. Fire escapes have been placed at the rear. There are no common corridors in the buildings, occupants entering private hallways directly from the land-

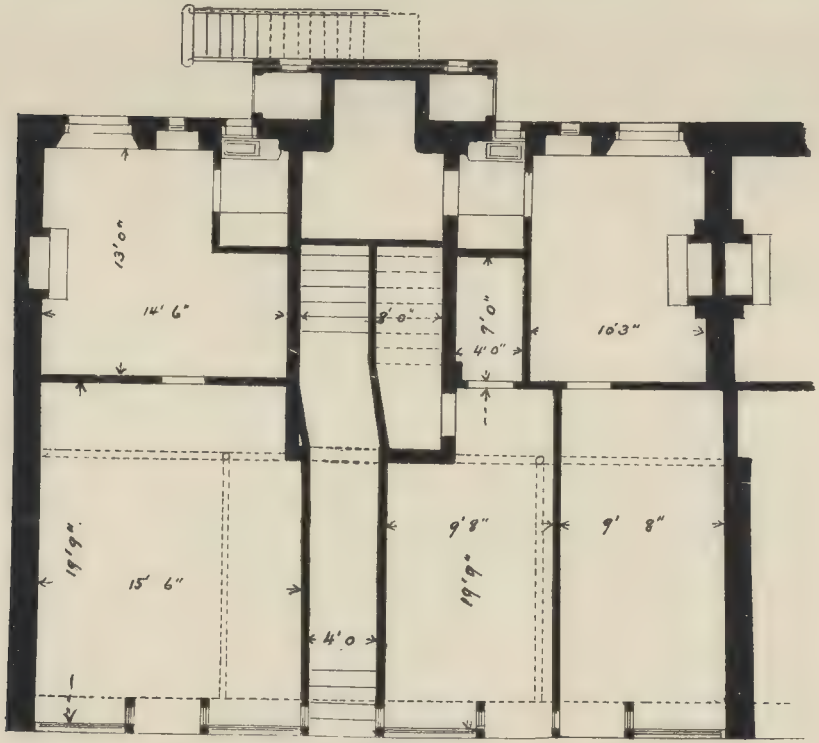


MUNICIPAL MODEL DWELLINGS, GLASGOW, SCOTLAND.

PLAN NO. 35 A.



Upper floors.



Shop floor.

MUNICIPAL MODEL DWELLINGS, GLASGOW, SCOTLAND.

PLAN NO. 35 B.

ings. Three families are located on each floor. Ventilation and lighting have been thoroughly provided for, every room communicating directly, either by doors or windows, with the open air. There are no wells or light shafts, but the air has free and direct access to each room. Each tenement has a water-closet, opening from the landing, for the sole use of occupants. The closets are provided with a good flushing apparatus, and the soil pipes, together with waste-water pipes (to which the smoke test has been applied), are placed outside the buildings. A laundry exists for every nine families. Cooking ranges, unprovided with hot water boilers, have been placed in the kitchens. There is also a storage box with a capacity of 300 pounds for coal. Garbage receptacles were formerly placed on landings; a bin in the back of the court has been substituted. This is cleaned daily. A fire-place is found in each bedroom. There are no clothespresses, mirrors, chandeliers, lamps, window shutters, or balconies as fixed accessories to the buildings. Gas is provided, but at the expense of the tenant. The only interior decoration of importance is tile work for the hallways and in all water-closets. The original cost of block 1 of the Saltmarket model dwellings was £10,044 ($48,879.13). The land is held in feu, and the annual duty is £225 ($1,094.96).

The average rental of one-room tenements is 3s. 3d. (79 cents) per week; two-room tenements, 4s. (97 cents) per week; three-room tenements, 5s. 9½d. ($1.41) per week. These rents include water. The total sum received in rents from block 1 during the fiscal year ending May 31, 1893, was £740 16s. 11d. ($3,605.33). The three groups of model tenement dwellings contain altogether 60 tenements of one room each, 58 of two rooms each, 8 of three rooms each, 15 single shops, and 10 double shops. The authorities were at first doubtful of the propriety of encouraging one-room dwellings, but so great was the need of accommodation for the class of people who could not afford to pay higher rents that the new Saltmarket model brick tenements, the third group erected, was entirely given up to one-room dwellings. Each apartment is very large and can be easily separated into two almost distinct chambers, so that unfavorable results from a large family of adults of different sexes living in the same room may be avoided. Separate lodgings are not sold to individuals inhabiting them, as is frequently the case in many parts of Scotland.

The money originally invested in the three groups of model tenements was £25,138 ($122,334.08). The net profit on fiscal operations for the year ending May 31, 1893, was 3.2 per cent for block 1, 3.5 per cent for block 2, and 4.6 per cent for block 3. The loss of rental resulting from unoccupied lodgings during the same period was £85 7s. 8d. ($415.52). Nearly all of this is chargeable to block 1, which for some reason or other during the last three years has not been in favor as a residence.

Rents are paid monthly, and are collected by a factor, or commission agent, who calls for them. Upon assuming occupancy a deposit of one

month's rent in advance is required as security for regular payment. The total amount of arrearages during the last fiscal year was £7 4s. 9d. ($35.22). Rents have remained stable.

The difficulties in evicting tenants are very considerable. Before undertaking this step the tenant must be at least one month in arrears. If the sheriff is appealed to the cost of eviction is 10s. ($2.43). If the case is brought before a magistrate the expense may not exceed half that sum. Tenants are generally not allowed to be in arrears more than two weeks before preliminary action is taken.

A curious characteristic of a great many of the working people has been exemplified in the Glasgow corporation's experience. It has frequently been noticed that tenants will take small, dirty lodgings in poor buildings, though able to pay for better, in order to save 6d. per week, while they have no hesitation in spending a far greater sum for drink, tobacco, or other luxuries.

The occupations and average weekly earnings, in 1892, of heads of tenant families of blocks 1 and 2 of the corporation's model tenements appear in the following table:

OCCUPATIONS AND EARNINGS OF HEADS OF FAMILIES IN THE MUNICIPAL MODEL DWELLINGS, GLASGOW.

Occupation.	Number.	Average weekly earnings.	Occupation.	Number.	Average weekly earnings.
Baker	1	$6.08	Joiners	2	$7.30
Baker	1	7.06	Machine maker	1	7.30
Boiler maker	1	7.79	Mechanic	1	4.87
Bookbinders	3	7.30	Mechanic	1	7.06
Boot cutters	2	6.81	Mechanic	1	7.30
Box maker	1	8.52	Molders	2	7.30
Brass finisher	1	7.30	Painter	1	7.54
Brush maker	1	6.08	Plasterer	1	7.30
Brush maker	1	7.30	Porters	2	4.87
Cabinetmakers	2	7.79	Porter	1	5.60
Carter	1	5.35	Porters	2	6.08
Carter	1	5.84	Postman	1	7.30
Carters	2	6.08	Postman	1	9.73
Carters	2	6.33	Printers	3	7.30
Carter	1	6.81	Roadmaker	1	6.81
Clerk	1	4.87	Sailmaker	1	6.81
Clerk	1	7.30	Salesman	1	4.87
Coachman	1	6.08	Salesmen	6	7.30
Constables	2	6.33	Saleswoman	1	3.65
Constables	2	6.57	Seaman	1	5.35
Constables	2	6.81	Shawl fringer	1	3.65
Constable	1	7.06	Shoemaker	1	6.08
Constables	2	7.79	Shoemaker	1	6.57
Cork cutter	1	7.30	Shopman	1	6.33
Dealers	2	3.65	Shopwoman	1	3.41
Dealers	2	3.89	Shopwoman	1	4.87
Dealer	1	6.08	Silversmiths	2	7.30
Dealer	1	6.81	Slater	1	7.30
Dealers	5	7.30	Spirit salesman	1	9.73
Dealer	1	8.52	Stone mason	1	6.81
Engineman	1	5.84	Storekeeper	1	5.84
Engineman	1	6.33	Storekeeper	1	7.30
Fireman, at sea	1	7.30	Storekeeper	1	7.79
Fish merchant	1	7.30	Tailor	1	6.33
Flesher	1	7.30	Tailor	1	7.30
French polisher	1	7.30	Tinsmith	1	7.30
Gas fitter	1	5.84	Tool makers	2	7.30
Gas fitter	1	6.81	Tool maker	1	7.79
Gut maker	1	9.73	Traveler	1	7.30
Hammerman	1	5.84	Van man	1	6.08
Hammerman	1	6.08	Warehouseman	1	6.08
Hammerman	1	6.33	Warehouseman	1	6.57
Inspector of police	1	9.00	Warehousewoman	1	3.65
Iron fitter	1	7.06			

At the time the Saltmarket tenements were visited, the buildings, designed for a lower stratum of working people, were not fully opened to habitation.

It is considered that the rentals absorb from 12½ to 16 per cent of the earnings of heads of families. Subletting or receiving boarders is not permitted. Each one of the buildings is in the care of a superintendent, who is responsible for the renting of the tenements; he also selects tenants and keeps order.

The occupants of these tenements are conveniently situated in reference to their work. Of heads of families, 40 are within five minutes' walk therefrom, 30 within ten minutes' walk, 22 within fifteen minutes' walk, 11 within twenty minutes' walk, and 3 within half an hour's walk. Three of the remainder are situated from one to two miles, and have to pay 2d. (4 cents) for a round trip by street car. Eight of them are situated within five miles of their work, and go to and fro on trains, the round trip costing 4d. (8 cents).

The corporation has not erected any accessories, such as baths, libraries, reading rooms, parlors, or halls for social or musical meetings.

ROSEMOUNT ASSOCIATION FOR PROVIDING DWELLINGS FOR WORKING PEOPLE, EDINBURGH.

A block of brick buildings containing 12 two-room and 84 three-room tenements, erected around a quadrangular open court, was constructed in Edinburgh in 1875. A little more than half of the space has been built upon. The remainder is paved with granolithic or left as a grass plot. The size of this interior court is about 150 feet by 120 feet. The buildings are three stories high. Stairways are situated at each corner of the buildings, and through these access is had to the different tenements from balconies running along the exterior of the buildings on the court side. Stairways are of stone and the roofing is of slate. The internal partitions are of brick, and party walls are carried above the roof. There is no cellar to the buildings. Through ventilation is provided for, and the apartments are heated from open fireplaces. Each family has a private water-closet and sink inside the building. The drains consist of 6 and 9 inch vitrified pipes jointed in Portland cement. Similar pipes are built into the internal walls of the water-closet apartments and terminate above the roof. The drains are trapped at the outlet. There is a laundry situated by the stairway on each story. The court is used as a drying ground. A cooking range has been placed in each kitchen, with a boiler for heating water. A dust shoot receives the sweepings and ashes Ceilings are 9 feet 7 inches high. The kitchens in two-room tenements are 14 feet by 12 feet and the bedrooms 10 feet by 12 feet 10 inches. The largest size three-room tenements contain kitchens 14 feet by 12 feet and bedrooms 10 feet by 10 feet and 10 feet by 5 feet, respectively. In the smallest three-room tenements the kitchens are 12 feet by 12 feet and the bedrooms 7 feet by 12 feet.

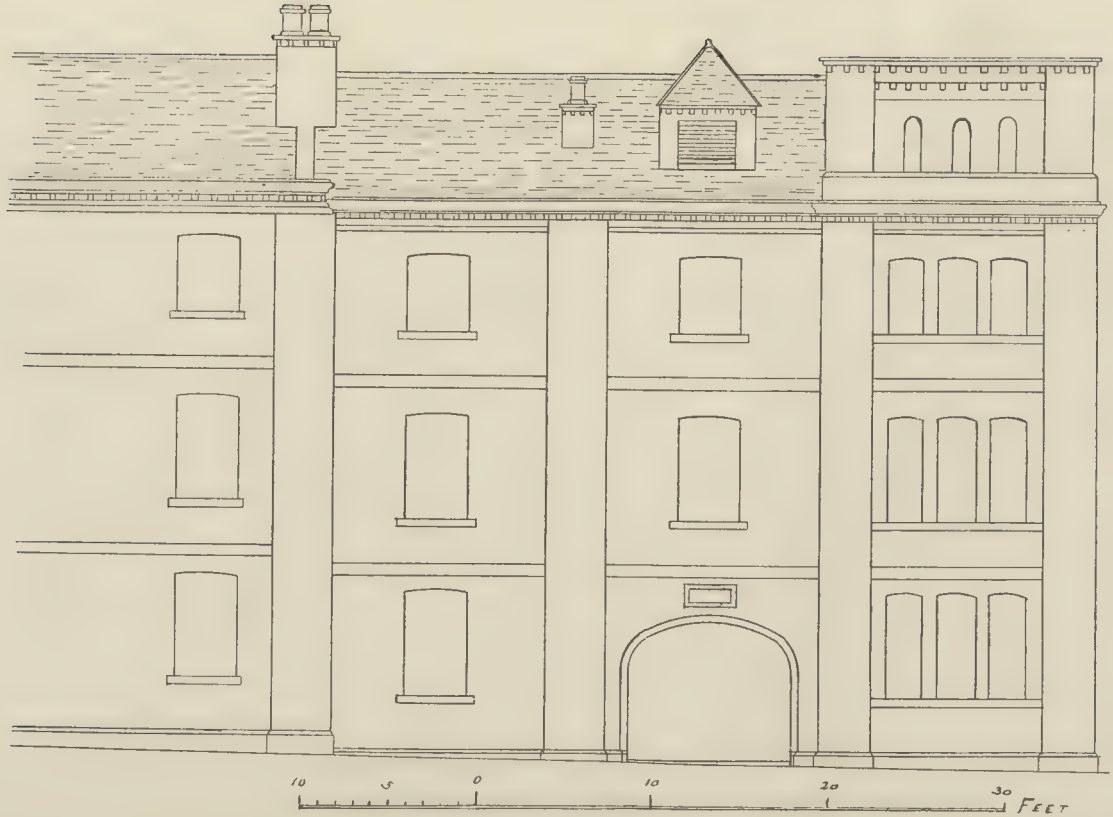
Each tenement contains a recess, additional, varying from 4 feet by 5 feet to 3 feet 6 inches by 7 feet, and a vestibule.

The buildings are always full. Ninety-six families can be accommodated, and the latest return revealed a population of 403 persons. The cubic air space per person is, on the average, 757 feet. The total cost of the buildings, ready for habitation, was £12,500 ($60,831.25). The rental of two-room tenements is 3s. 3d. (79 cents) per week. Three-room tenements rent for 3s. 6d. to 4s. 7d. (85 cents to $1.12) per week, according to size. In Scotland it is customary for the tenant to pay local taxes known as rates, so that these must be added in order to compare rentals with those in other countries.

The company paid 5 per cent dividend annually up to 1883, since which time they have paid 6 per cent. In addition, a reserve, which up to 1893 amounted to £3,575 ($17,397.74), has been accumulated, while the buildings have been kept in a thoroughly efficient state of repair. If this were applied to reduction of capital outlay the latter amount in 1893 would have been £8,925 ($43,433.51). Failure on the part of tenants to pay rent is almost unknown. Rents are paid quarterly in advance. They are called for by an agent of the company. Subletting is not permitted, but boarders may be received with the company's consent. The occupants of the house are mainly joiners, plasterers, stone masons, and general mechanics. They are in receipt of wages varying probably from £1 to £1 5s. ($4.87 to $6.08) per week, counting the whole year. The accompanying plans (plans Nos. 36 A and 36 B) show a sectional elevation and the general arrangement of the Rosemount buildings.

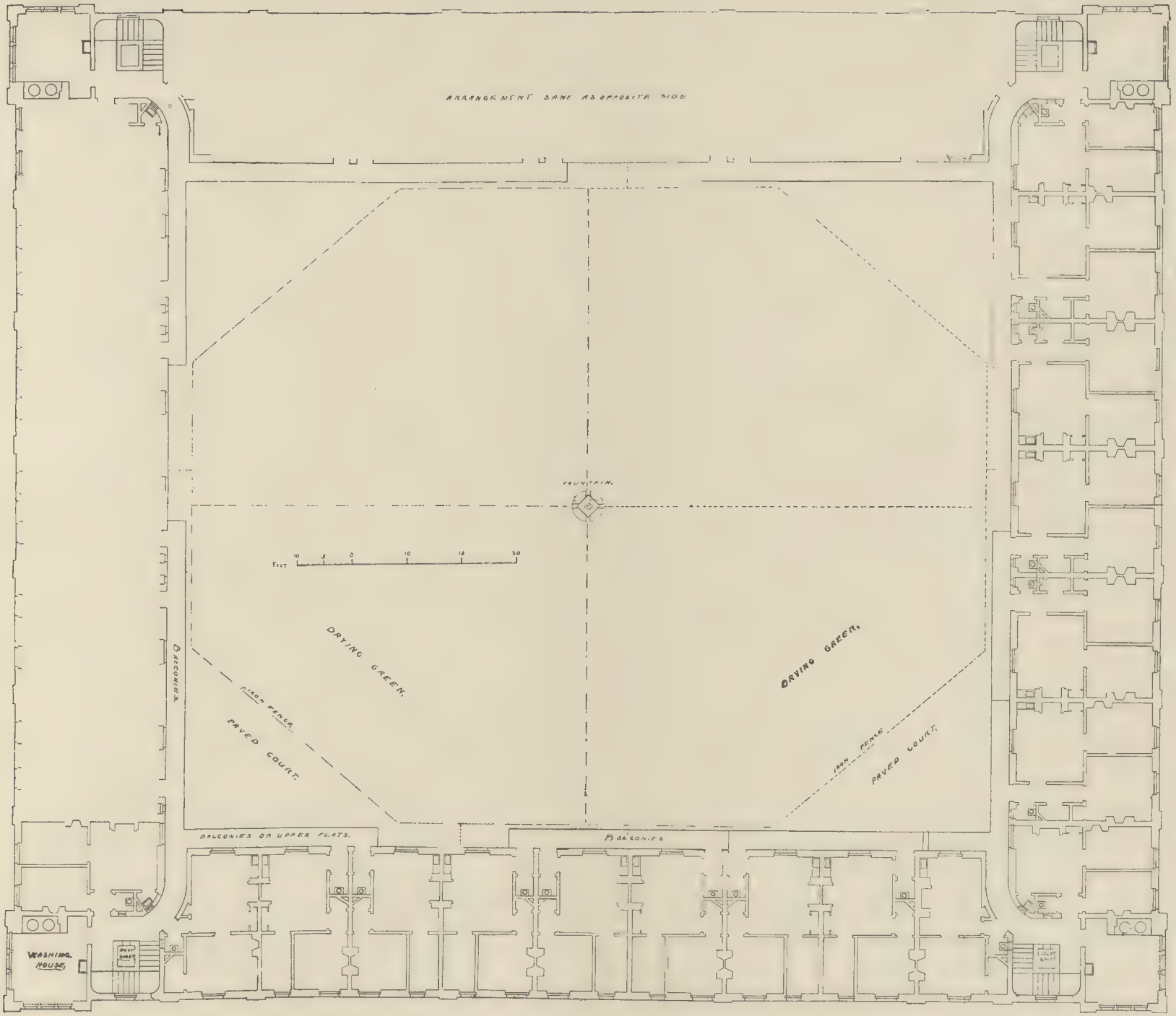
EDINBURGH ASSOCIATION FOR IMPROVING THE DWELLINGS OF THE POOR, EDINBURGH.

This organization has undertaken the task of housing, on a commercial basis, the poorer elements among working people. Upon a lot irregular in shape, having 95 feet front and 109 feet depth, tenement buildings containing four stories in the front and two stories in the rear have been constructed. About 58 per cent of the total ground has been built upon. It is partly paved and partly a grass plot, and is used for recreation purposes and drying clothes. The front buildings are of stone, those in the rear are of brick. They are very strongly constructed and as nearly as possible are fireproof. Roofing is of timber covered with slate and zinc. Stairways are set in brick walls, and the steps are of stone supported by ironwork. The staircase is open on two sides and roofed over. The landings are in the form of open balconies, from which the dwellings are entered. All interior partitions are built of brick. Access to the shops and tenements on the first floor is from the public street. There are no special arrangements to prevent mingling of occupants upon stairways and landings. Every room communicates directly, either by doors or windows, with the open air. Each room has a cased window with both sashes made to open, and an open



ROSEMOUNT BUILDINGS, EDINBURGH, SCOTLAND.

PLAN No. 36 A.



ROSEMOUNT BUILDINGS, EDINBURGH. SCOTLAND.

PLAN NO. 36 B.



Front elevation.

BLOCK BUILDINGS OF THE EDINBURGH ASSOCIATION FOR IMPROVING THE DWELLINGS OF THE POOR, EDINBURGH, SCOTLAND.

PLAN NO. 37 A.



Elevation of back building and section of front.

BLOCK BUILDINGS OF THE EDINBURGH ASSOCIATION FOR IMPROVING THE DWELLINGS OF THE POOR, EDINBURGH, SCOTLAND.

PLAN NO. 37 B.



BLOCK BUILDINGS OF THE EDINBURGH ASSOCIATION FOR IMPROVING THE DWELLINGS OF THE POOR. EDINBURGH. SCOTLAND.

PLAN NO. 37 C.

fireplace, which materially assist in good ventilation. For the common lobbies there is a ventilating tube taken from the outer wall opposite the entrance doorways. On each story there are seven water-closets, three at the stairs and four in the tower. Every two-room tenement has a water-closet. Two of the single-room tenements have one closet in common. A census of occupants shows that there are about six persons on the average per water-closet. Closets are furnished with 3-gallon flushes. The drains consist of 4, 5, and 6 inch spigot and faucet, salt-glazed fire clay pipes jointed with cement and trapped at the outlet before entering the sewer by means of a ventilating trap placed in a manhole, and rendered easily accessible by a portable cover. Access chambers are situated at suitable places throughout the whole drainage system. Disconnection of the waste pipes, sinks, washing tubs, baths, and rain-water pipes is effected by ventilating traps. Soil pipes and waste pipes from sinks, etc., are continued several feet above the roof. Both of these classes of pipes are of cast iron and are fixed outside of the building. Each tenement is provided with a sink and water tap. Laundries and baths are fitted up on the respective floors. Open fireplaces furnish the heating, and gas is employed for lighting. Washing is done in the laundries, not in the lodgings. Drying poles have been fixed in the paved court. During rainy weather the attic serves as a drying room. A wooden box in the window recess furnishes fuel storage. Dust shoots on each floor receive the dry garbage. In the back buildings pantries have been erected off the living room, in which there are a sink, dresser, etc. In the front buildings a large clothespress has been prepared for each tenement. Most of the single-room tenements have sculleries attached, with sink and cupboard for dishes. Bedrooms and living rooms are papered, and the latter are varnished 4 feet up from the floor. A picture molding extends all around the room.

The exterior and interior characteristics of the buildings are best seen from the accompanying plans (plans Nos. 37 A, 37 B, and 37 C).

The buildings contain 16 one-room and 17 two-room tenements. The average air space in the former is 2,210 cubic feet, in the latter 3,040 cubic feet. Ceilings are 10 feet high. Thirty-three families, comprising 141 persons, are in occupancy. The rental charged for an ordinary sized single-room tenement is £5 7s. ($26.04) per year. The largest sized tenements of this class rent for £6 14s. ($32.61) per annum. Two-room tenements rent for from £9 to £9 9s. ($43.80 to $45.99) per year. Tenants pay all rates except the water rate.

The cost of the land upon which the buildings were erected was £800 ($3,893.20). The buildings, ready for habitation, cost £5,424 18s. 6d. ($26,400.40). The enterprise is a joint stock limited liability company. Two per cent was paid the first year, 3 per cent the second, 4 per cent the third, and 3½ per cent during the fiscal year 1893. The average annual dividend so far has been 3⅓ per cent. This is a fair

return, considering that tenants belong to the very poor class, a great many of them being casual laborers. A month's rent is demanded in advance; after that payments are made weekly, monthly, or quarterly, at the option of tenants. Lady rent collectors look after the property and are allowed a commission of 5 per cent. They do not depend upon this source of income for their livelihood, but generally spend their commissions upon entertainments for the tenants.

WELL COURT MODEL TENEMENTS, EDINBURGH.

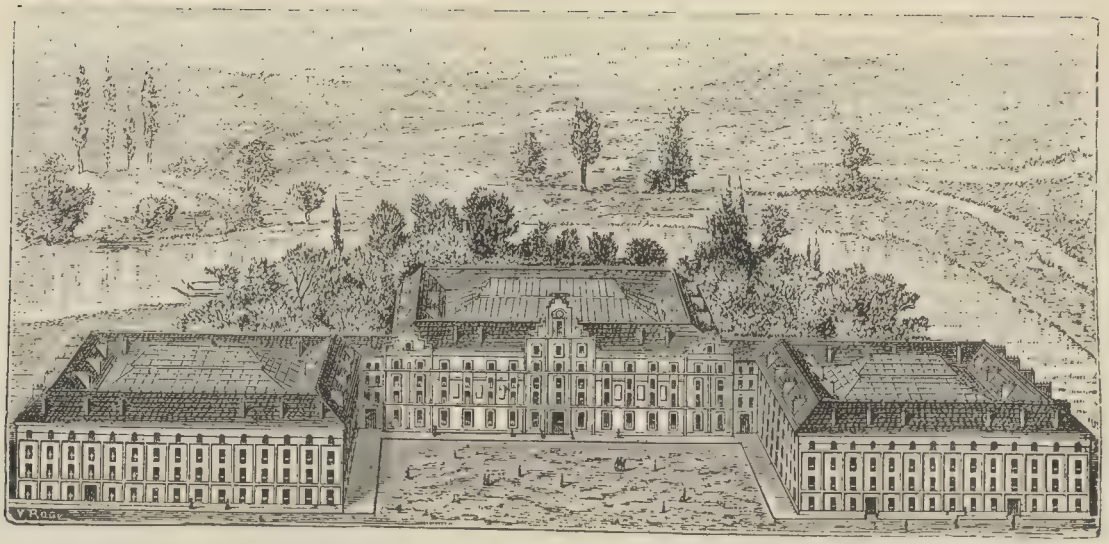
This property belongs to J. R. Findlay, proprietor of the Edinburgh Scotsman. The building is artistically constructed of brick, and has accommodation for fifty families. The total cost, including site, was £11,500 ($55,964.75). Rents range from £7 to £11 9s. ($34.07 to $55.72) per annum, making a rent roll of £490 15s. ($2,388.23). A little over 3 per cent is the net income from this property. It is intended for the better class of working people. The tenements are of various sizes, some having a living room with two bedrooms, others a living room with a single bedroom. The larger apartments have separate sculleries with washtub and sink, the smaller ones have sinks only. Each tenement has a water-closet. The tenements are painted, papered, and fitted with grates and gas fittings. The drains and sanitary arrangements are of the most complete description.

FRANCE.

THE FAMILISTÈRE, GUISE.

At Guise, in the department of Aisne, is situated the Familistère, founded by Jean Baptiste André Godin. The foundation for the first building was laid in April, 1859. In the Familistère are now comprehended seven groups of constructions, three of which are groups of block dwellings. The first group erected, composed of a central building and two wings, and a plan of the ground floor are shown in the accompanying sketches (plans Nos. 38 A and 38 B).

The left wing of the first group of block dwellings was constructed from 1859 to 1861, the central portion from 1862 to 1865, and the right wing from 1877 to 1880. The second group of block dwellings was constructed from 1882 to 1883, and the third from 1883 to 1885. In the remaining groups of buildings are comprised produce warehouses, a nursery, a theater and two schools, a public laundry and baths. The first group contains in all 299 tenements, of which 12 are one-room, 201 two-room, 75 three-room, 1 four room, 6 five-room, 3 seven-room, and 1 eight-room tenements. The second group contains 19 tenements, chiefly of two and three rooms. The third group contains 11 one-room, 79 two-room, 56 three room, and 1 five-room tenements. The three groups of block dwellings contain altogether 1,091 rooms. The spaces



THE FAMILISTÈRE, GUISE, FRANCE.

PLAN NO. 38 A.

A Nursery
B – Kindergarten
C.—Manager's offices
D.—Clothing stores
E Grocery stores
F Library

G Lodgings
O Water-closets and sinks.
P. –Fountains
R Sweepings
1. 2 3 Glass roofed courts



Ground floor.

THE FAMILISTÈRE, GUISE, FRANCE.

PLAN NO. 38 B.

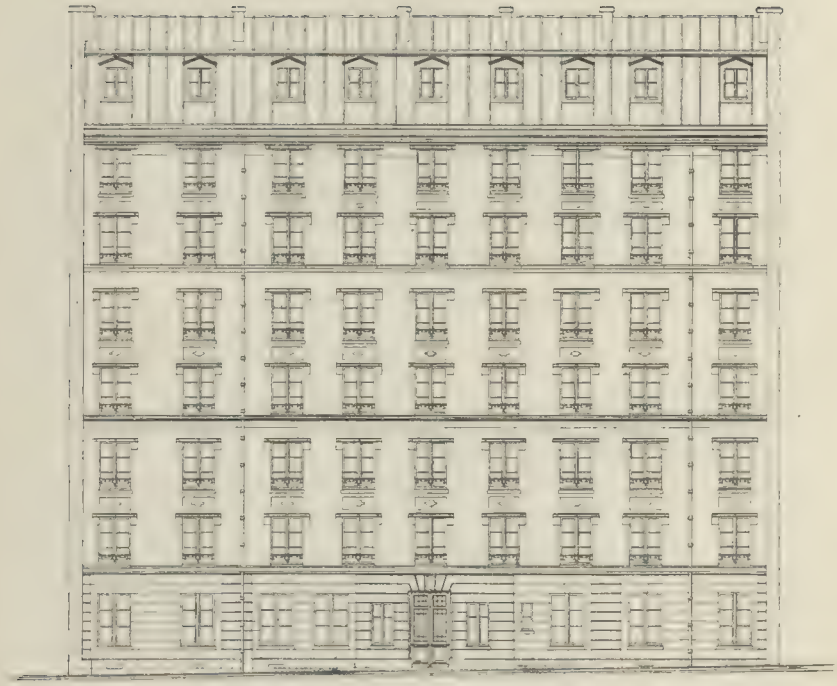
that would have been occupied by fifteen rooms within these buildings are taken up with a grocery store, a clothing store, library, drug store, printing office, etc. The first group is composed of three squares, each inclosing interior courts, paved and covered with glass. The theater and schools are opposite the center of this group, facing the open space between the two wings. The nursery and infant schools are on the other side of the central wing, and form a sort of extension to it. There are other annexes near the left wing and close to the theater and school building. The space between the first group of block dwellings and the theater is laid out in grass plots. The second and third groups of block dwellings are situated not far from the first. All of the tenements have balconies on the court side, to which the doors open, this being the only means by which all but the corner ones are reached. The stairways are built in the interior and lead to the exterior balconies. They are placed in the corners. Each story contains separate sets of privies for men and women. Privies are not provided in sufficient numbers, only 99 being available for a population of about 1,800. Artesian wells furnish the water, which rises nearly to the height of the roofs and is distributed to reservoirs, whence it descends in pipes having a spigot on each floor. The reservoirs hold from 8,000 to 8,700 liters (2,113 to 2,298 gallons). Good provision has been made for sewerage, and the privy pits are emptied at least once a year. Liquid sewage runs off into the river which passes the grounds. Twenty women are employed to sweep and keep in order the courts, staircases, balconies, and privies. These services cost annually 7,530 francs ($1,453.29). Sweeping is done every morning and a general cleansing takes place every week, except in the privies, which are thoroughly flushed seven times a day. The total cost of construction for the three groups of dwellings and the annexes (theater, schools, and laundry) was 2,100,218.60 francs ($405,342.19), or an average cost of 140.54 francs ($27.12) per square meter. Rentals are paid by the month, are based upon superficial area, and vary according to the story and the exposure, the southern and western commanding higher rates than the eastern and northern.

In the left wing rents vary from 27.50 centimes to 35.20 centimes (5.3075 cents to 6.7936 cents) per square meter; in the central building the rents are the same as in the left wing; in the right wing rents vary from 22.50 centimes to 28.80 centimes (4.3425 cents to 5.5584 cents); in the second group the rents vary from 29.80 centimes to 35.80 centimes (5.7514 cents to 6.9094 cents); in the third group from 27 centimes to 36 centimes (5.2110 cents to 6.9480 cents). The total rent roll exceeds 107,000 francs ($20,651) annually. All workingmen desiring to enter the buildings must apply to the general managers. The application is then examined by the council of the Familistère, and if approved must be ratified by the managing council.

PHILANTHROPIC SOCIETY OF PARIS.

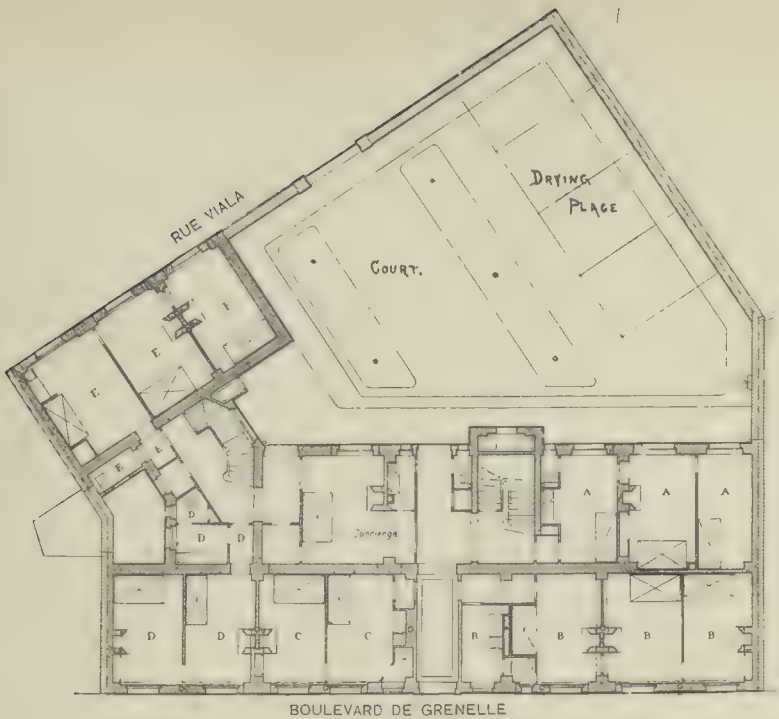
This organization (Société Philanthropique de Paris) concerns itself with philanthropic work of various kinds. It dates back to 1780, in which year it was founded. In 1839 it was recognized by the French government to be of public utility. Part of its energies are now devoted to the provision of houses for working people, and this branch of effort is directed by M. Georges Picot. Through the generosity of a Parisian banker, M. Michel Heine, who in 1888 made a donation of 750,000 francs ($144,750), it was enabled to commence this work. He confided the administration of this trust to the Philanthropic Society, stipulating simply that the example of the Peabody donation fund should be followed as closely as possible. The profits accruing from fiscal operations were to go solely to increase the capital fund. In accordance with the terms of this trust three tenement buildings have been erected in different parts of Paris, containing in all 137 separate tenements, of which 40 contain two rooms and 97 three rooms each. The rentals vary from 260 to 312 francs ($50.18 to $60.22) for two-room tenements and from 260 to 390 francs ($50.18 to $75.27) for three-room tenements annually. The first building was opened for habitation in December, 1888. The estimated value of the model tenement property is now 750,431.95 francs ($144,833.37). Three and nineteen one-hundredths per cent represents the profit for the last fiscal year for which returns are available. The total rent roll was 38,250 francs ($7,382.25). The loss of rental from unoccupied lodgings was 739.25 francs ($142.68). The list of occupations of heads of families for 1891 showed that 12 were railway employees, 19 wood workers, such as carpenters, cabinet-makers, wheelwrights, box makers, and coopers, 17 iron workers, including machinists, brass and copper smiths, 3 electrical workers, 5 masons and painters, 6 employees of sugar refineries, 4 gas workers, 2 policemen, 7 postal and telegraph clerks, 2 government employees, 12 clerks in business houses, 2 teachers, 8 tailors and seamstresses, 3 licensed messengers, 3 housekeepers, 10 laborers, and 21 of various vocations. The earnings of the heads of these families vary from 3.50 francs to 6 francs (68 cents to $1.16) per day. The report of the Philanthropic Society for 1890 estimates 12½ to 14½ per cent as the apparent proportion of earnings paid for rent among inhabitants of these model buildings.

The model tenement building situated in the Boulevard de Grenelle occupies a lot irregular in shape and covers a little over one-half of its area. It is of brick with stone trimmings, and eight stories high, counting the ground floor. The building contains 9 two-room and 37 three-room tenements, varying in size. The height of ceilings on the ground floor is 9 feet 11 inches and in the remaining stories 8 feet 6 inches. Gas has been put in each apartment. Each tenement has one or more fireplaces, a cooking range with boiler, a sink, a receptacle



BLOCK BUILDING OF THE PHILANTHROPIC SOCIETY OF PARIS, PARIS, FRANCE.

PLAN NO. 39 A.



Ground floor.

BLOCK BUILDING OF THE PHILANTHROPIC SOCIETY OF PARIS, PARIS, FRANCE.

PLAN NO. 39 B.



Upper floors.

BLOCK BUILDING OF THE PHILANTHROPIC SOCIETY OF PARIS, PARIS, FRANCE.

PLAN NO. 39 C.

for water, dust shoots emptying into a receptacle on wheels placed in the court, gas jets, and, where desired by tenants, the free use of a gas stove. All the woodwork, which is of oak, is finished in hard oil, and the walls are papered. Externally the brick walls are trimmed with cut stone cornices and supports. Cuts showing the front elevation and the plans of the interior arrangements are given (plans Nos. 39 A, 39 B, and 39 C).

The houses are not built so as to secure through ventilation. Sewerage has been well attended to. There is a court in the rear of the building which is unpaved but planted with trees. It is covered with sand and is largely used as a playground for children.

HEALTHY DWELLINGS COMPANY, MARSEILLES.

The Société des Habitations Salubres et à Bon Marché de Marseille was organized May 23, 1889. The capital stock was fixed at 250,000 francs ($48,250), and was subscribed in 500 shares at 500 francs ($96.50) each. All the stock was taken up by ninety-three persons. In the meantime a subsidy of 10,000 francs ($1,930) was received from the municipal corporation May 7, 1889.

The first tract of land was purchased on August 2, 1889, and the construction of a building was begun on August 30, 1889. It was ready for habitation on May 13, 1890. This building is known as the Groupe des Catalans, and contains forty dwellings.

A second site was purchased on December 27, 1889, and a building erected on it, which was ready for habitation September 9, 1890. This group is known as Quartier Jules Simon, and contains twenty-six dwellings.

On June 24, 1892, the capital stock was increased to 350,000 francs ($67,550). The new stock—200 shares at 500 francs ($96.50)—was all taken up by the Compagnie des Docks et Entrepôts de Marseille, with the understanding that a tenement building should be constructed in the vicinity of their business, and that in the selection of tenants for the new building preference should be given to the employees of the company.

The construction of this building was commenced on August 27, 1892, and it was expected to be completed by the end of February, 1893. This building is known as the Groupe de la Madrague, and contains thirty-six dwellings.

The first group erected is situated in rue Saint-Lambert. The area of the lot is 9,117 square feet and of the building 6,394 square feet. Seventy per cent of the lot has therefore been built upon. The open space is in the form of courts. The building is four stories high. The thickness of exterior walls is 14 inches. Cellars have not been provided, but there is free circulation of air under the first floor. There are three sets of staircases for the three sections of the building. Two are used by four families and one by two families on each floor. The stair-

ways in two of the sections are reached from the front by means of a passageway 4 feet 11 inches wide, and also directly from the rear entrance. These staircases are 6 feet 7 inches wide and are lighted by windows in the rear on each floor. In the third section the staircase is reached by a passageway 11 feet 10 inches in width, extending from the street to the rear court. This stairway is lighted only by windows opening to a small interior light shaft. Each family has its own private hallway, 2 feet 9 inches wide, extending from the staircase to the end of the suite. Each room opens to this hallway. By this arrangement strict privacy is maintained, although, perhaps, somewhat at the expense of free circulation of air. Each tenement is entirely self-contained. Every room communicates directly with the open air, but there is no through ventilation from front to rear except by means of the staircases. The walls which separate the private hallways also shut off through circulation. The water-closets and private hallways have windows opening to airshafts midway between the street and court. The central airshaft is 13 feet 1 inch by 6 feet 7 inches, that at one end 5 feet 1 inch by 6 feet 7 inches, and that near the other end about 3 feet 11 inches square. For each tenement there is allowed 128 gallons of water per day. Good plumbing arrangements exist throughout; especially is there excellent water-closet flushing. A clothespress is provided in each of the four-room and three-room tenements, but aside from this the interior conveniences are not numerous. Sinks are placed in all the kitchens, and a soup kettle which takes the place of a cooking range. This group of dwellings contains 2 two-room tenements, 14 three-room tenements, and 24 four-room tenements.

Thirty-seven families, comprising 163 persons, dwelt in this group of model dwellings during the fiscal year ending September 30, 1891. The rents vary from 140 francs to 280 francs ($27.02 to $54.04) per tenement per year, except in the case of 2 four-room tenements, in each of which one room is fitted up as a store. The rentals of these are 290 francs and 340 francs ($55.97 and $65.62) annually. The average rental for tenements is about 234 francs ($45.16) per year. The total sum received for rent for the year ending September 30, 1892, was 8,764.40 francs ($1,691.53). The original cost of the lot was 4,746.65 francs ($916.10), of the building 131,031.45 francs ($25,289.07).

The annual dividend paid on the original share capital since the enterprise was founded is 3½ per cent. No capital has been borrowed. The total estimated value of the three properties on September 30, 1892, was 226,019.50 francs ($43,621.76). The total sum received from rent during the fiscal year was 13,301 40 francs ($2,567.17). This is for two groups valued at 200,572 francs ($38,710.40), the third group not having yielded any revenue up to that time. One-twentieth of the annual net profits is set aside for the legal reserve. One-twentieth of the original construction cost and one-twentieth of the value of fixtures

are also annually set aside before dividends are paid. All the lodgings were occupied during the last fiscal year for which returns were available. Rents are paid monthly in the smaller group of dwellings and quarterly in the larger.

The occupations of the tenants of the first two groups of dwellings are as follows:

OCCUPATIONS OF TENANTS OF HEALTHY DWELLINGS COMPANY, MARSEILLES.

Occupation.	Number.	Occupation.	Number.	Occupation.	Number.
Baker	1	Laborers	6	Plasterer	1
Brakeman	1	Laborers, slaughter-house	2	Plumber	1
Chambermaid	1	Laundry women	2	Porters	6
Charger	1	Leather dresser	1	Seamen	4
Clerks	5	Machinists	4	Seamstresses	2
Compositor	1	Mason	1	Shoemakers	2
Conductors, street car	2	Mattress maker	1	Soldier	1
Cooper	1	Messenger	1	Stonecutter	1
Drivers	4	Milliner	1	Tailors	2
Employee, car shops	1	Musician	1	Varnisher	1
Engineer	1	Painter, house	1	Wheelwright	1
Engineer, marine	1			Wood carver	1
Green grocer	1				

TENEMENT DWELLINGS COMPANY, ROUEN.

The group of model tenements belonging to the Société Anonyme Immobilière des Petits Logements selected for description is the Alsace-Lorraine. The area of the lot is 16,489 square feet, of which 9,688 feet, or about 59 per cent, is covered with buildings. The open space is in the form of a court at the rear. Paved sidewalks surround the court. The interior is partly concreted and partly laid out as a garden with gravel walks. It is given up entirely to the free use of occupants, and a portion of it has been covered so as to serve as a recreation ground for children in rainy weather. The buildings are of brick with stone trimmings and five stories high. The staircases are fireproof, and floors of landings are of cement laid on concrete. The rafters are of iron fitted into the masonry. Doors in the attic connect the different parts of the buildings, so that escape in case of fire is effectually guaranteed. The cellar is paved with cement laid on concrete. There are three tenements to each landing, except in the corner buildings, where there are four. Stairways have been placed in an extension to the buildings. But one door from a family lodging opens directly to the stair or hallway. Every room has direct communication with the external air, and there is through circulation from front to rear in all the tenements. In the three-room tenements the currents of air may pass directly through the room, while in the others the ventilation is by means of outside windows on the one side and the staircase window on the other. The water-closets, one of which is provided for each family, are situated in the rear extension beside the stairway. They are thus entirely separated from the main building. The refuse from the closets is carried directly to the city sewers by means of trapped pipes. The courts

and stairways are lighted with gas; hallways are not heated. The water is outside, but in close proximity to the dwellings. No cooking range has been provided by the company. A space for fuel storage is set apart in both cellar and garrets. Dust shoots carry off the ashes and sweepings from each story. A pantry has been placed under the window casement and a buffet in the kitchen. There is a clothespress in each tenement. There is a fireplace in at least one bedroom of the tenement. Lower stories have window shutters, but the upper ones are not so provided. Gas jets have been placed in every tenement. There is a small iron anvil on each floor, upon which wood is chopped. The door casings are painted and walls papered. The window casings have been made broad, with the idea of furnishing space for potted plants. Sketches of the front and corner of interior court of this group of buildings are shown, together with a plan of the second floor (plans Nos. 40 A and 40 B).

The buildings contain 16 one-room tenements, 27 of two rooms, 37 of three rooms, 4 of four rooms, and 15 stores. Dimensions are given on the plan. But one death occurred in these buildings during the year 1891. There were eight births. In 1888 statistics showing the relative mortality and birth rate among inhabitants of these buildings, as compared with the rate for the city, were prepared. The births were 32 per 1,000 for the buildings and 27 per 1,000 for the city; the deaths 8 per 1,000 for the buildings and 34 per 1,000 for the city. The buildings were opened for habitation in 1886. The original cost of the land was 59,200.10 francs ($11,425.62); of the buildings, 393,185.13 francs ($75,884.73). Incidental expenses amounting to 10,991.83 francs ($2,121.42) must be added, so that the total cost of the property was 463,377.06 francs ($89,431.77). Single-room tenements rent for 87 francs ($16.79) per annum in the fifth story, 99.30 francs ($19.16) in the fourth story, 108 francs ($20.84) in the third story, and 112.80 francs ($21.77) in the second story. Two-room tenements rent for 206.80 francs ($39.91) per annum on the ground floor, 258.20 francs ($49.83) in the second story, 241 francs ($46.51) in the third story, 213.80 francs ($41.26) in the fourth story, and 193 francs ($37.25) in the fifth story. Three-room tenements rent for 200.40 francs ($38.68) on the ground floor, 344.93 francs ($66.57) in the second story, 332.89 francs ($64.25) in the third story, 278 francs ($53.65) in the fourth story, and 275.20 francs ($53.11) in the fifth story. Four-room tenements rent for 450 francs ($86.85) in the second story, 430.80 francs ($83.14) in the third story, 400.80 francs ($77.35) in the fourth story, and 380.40 francs ($73.42) in the fifth story.

The total amount of present share capital is 460,000 francs ($88,780). The enterprise is a stock company, and shares have been taken by individual subscribers. The facts as to financial returns are not available since 1890, but up to that time the company had paid four annual dividends, averaging 2.11 per cent. The reserve set aside at that time equaled 2,024.26 francs ($390.68), so that the average annual net profit

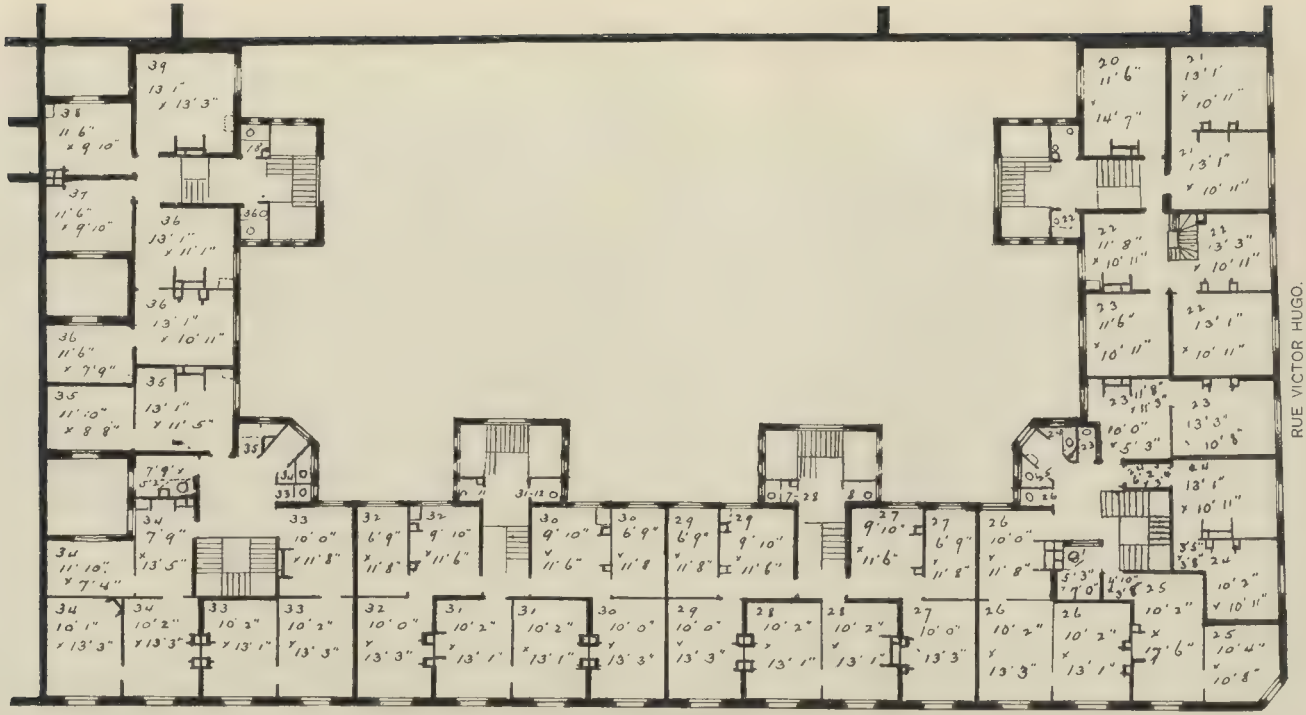


Front view.

Corner of interior court

GROUP ALSACE-LORRAINE, ROUEN, FRANCE.

PLAN NO. 40 A.



RUE ALSACE-LORRAINE.
Second floor.

GROUP ALSACE-LORRAINE, ROUEN, FRANCE.
PLAN NO. 40 B.

for those four years, including the reserve, would amount to about 2.2 per cent. Taxes on the property amounted in 1890 to 4,604.70 francs ($888.71). Rents are paid monthly, in advance, at the company's office. Thirty days' notice is required of intention to leave. About 16½ per cent of the earnings of the heads of families in these buildings goes for rent. Subletting or taking boarders is not permitted. The only rental contract is a signed agreement on the part of the tenant to conform to the rules and regulations.

The resident superintendent is in charge. His duties are to choose tenants, collect rents, and see that property is kept in good order. He has an assistant, or janitor, who keeps the stairs and court in proper condition. The tenants have only their apartments to look after. Laundries are placed at the disposal of tenants, each tenant having access once a week. They must supply their own fuel, but an unlimited quantity of water is allowed. There are two other accessories not usually found in model buildings of this class. The first is a cider press, which has been placed in the outhouse, and which may be utilized on the payment of an insignificant fee. The second is a room in the outhouse which may be used as a mortuary, or as an infirmary in case of contagious diseases.

The inhabitants of the buildings are conveniently located with reference to their work, none of them being more than half a mile distant.

The chief cause of meager financial returns has been the number of empty tenements. Whether the cause of this is to be found in the prejudice of Rouennais workingmen against enterprises of the sort does not appear; certainly the rentals do not call for as high a proportion of income as is usually spent in house accommodation.

CHEAP DWELLINGS COMPANY, LYONS.

In 1886 Messrs. Félix and Lucien Mangini, Joseph Gillet, and Edouard Aynard organized a company with a capital stock of 200,000 francs ($38,600), each one subscribing 50,000 francs ($9,650). The object was to purchase land and erect dwellings for working people in which the elements of hygiene, economy, and domestic comfort should receive due consideration. Dividends were limited to 4 per cent. It was provided that the dwellings could be sold to tenants, but the main object was rental. It was believed that, in general, it was not desirable to attempt to make the workingman the owner of his home, owing to the frequency with which he moved from place to place. The quarter of Lyons known as de la Mouche was selected as the site for building operations. A tract of land 71.71 meters (235.27 feet) in length and 15 meters (49.21 feet) in depth was purchased at a cost of 27.38 francs ($5.28) per square meter. The area was 1,060 square meters (11,409.84 square feet). The configuration of the ground permitted the erection of five buildings, one isolated and four in groups of two. The total cost of these five buildings, including all incidental expenses

and 4 per cent interest on the money while building operations were going on, was 143,539.61 francs ($27,703.14), exclusive of land. The cost of the latter was 29,021.75 francs ($5,601.20). The paving of sidewalks, courts, and accessories absorbed 5,538.64 francs ($1,068.96) additional. The average cost of each of the five buildings was 35,620 francs ($6,874.66); of each of the sixty tenements contained in them 2,968 francs ($572.82). The rental of 120 francs ($23.16) per tenement per year was therefore fixed as the rate which would insure 4 per cent net profit. The total sum received for rent during the first year of operations was 11,801.45 francs ($2,277.68). The uncollectible arrears amounted to 247.75 francs ($47.82). There were no empty tenements. The loss from rental was therefore a little more than 2 per cent, and was due chiefly to leniency in cases of death or sickness in families. The total expenses were 2,034.06 francs ($392.57). The net returns were 9,767.39 francs ($1,885.11). Interest at 4 per cent would absorb 7,124 francs ($1,374.93). There remained, after payment of all expenses and 4 per cent dividend, a surplus of 2,643.39 francs ($510.17). If we subtract from this a partial remission of taxation on newly built property, which holds good during the first two years, the sum of 800 francs ($154.40), there remained a reserve of 1,843.39 francs ($355.77).

The successful results achieved by this joint partnership brought about the establishment of the Cheap Dwellings Company (*Société Anonyme de Logements Économiques*). The possibility of providing good and wholesome accommodation at 30 per cent less than the ordinary rates, and at the same time securing a return of 4 per cent on the capital invested, was the motive for extending the work. The capital stock was first fixed at 1,000,000 francs ($193,000). In 1890 it was increased to 2,000,000 francs ($386,000), and recently to 3,000,000 francs ($579,000). The increase has been due to the necessities of the company in making constant additions to its property. There has been no change of policy. The stock is held partly by private subscribers, and the local savings bank has subscribed from its reserve funds one-half of the capital stock.

The houses selected for description are a group of sixteen, located on four squares, fronting each other and each subdivided into groups of two houses, each smaller group standing entirely alone. About 50 per cent of the ground has been built upon. The rear open space is planted with trees. The houses are five stories high and are built of concrete (*mâchefer*), cut stone being used for the cornices. The staircases are of stone, with iron railings, and the roofing is of tiles. The floors rest on iron joists filled in with masonry. Cellars are partitioned with cement flags. The kitchens are paved with square tiles; all other rooms have inlaid floors of Burgundy oak. The woodwork of windows and of outer doors is of oak. Windows on the ground floor have shutters, and on the floors above Venetian blinds have been used. Living apartments, halls, and water-closets are papered. Kitchens are

finished in plaster of paris in two colors. The external appearance of the houses is made to conform as nearly as possible to the prevailing type of habitation in the city, so that they may not be distinguished externally. There is through ventilation. Three-room tenements have a water-closet for the sole use of occupants, but the occupants of two-room tenements use a closet in common. Closets are inside the buildings, but outside the tenements. A range has been placed in each kitchen; also a coal box and cupboard and shelves. There is a clothespress in each tenement, and also a marble mantelpiece in the largest room. The ceilings are 11 feet 6 inches high on the ground floor, 10 feet 10 inches on the second floor, 10 feet 6 inches on the third floor, 10 feet 2 inches on the fourth floor, and 8 feet 6 inches on the fifth floor. The rental for two-room tenements varies from 8 francs to 11 francs ($1.54 to $2.12) per month. Three-room tenements rent from 14.50 francs to 21.50 francs ($2.80 to $4.15) per month.

The total number of buildings owned by this company in the last fiscal year for which these facts were available was fifty-five, comprising 647 tenements. Four per cent dividends have been paid annually since the foundation of the enterprise, and the total reserve up to December 31, 1890, amounted to 45,041.58 francs ($8,693.02), or about 2¼ per cent on the capital stock at that date. A portion of this is set aside as a special fund to guarantee the payment of future dividends should business returns not be so favorable at any time. The appreciation of the excellent accommodation furnished is best measured by the loss of rental resulting from unoccupied tenements during the fiscal year; out of 160 tenements this amounted to only 156 francs ($30.11). Rents are paid monthly when accrued. Tenants are required to sign a three years' lease. The rentals in these buildings are about 30 per cent less than for very much inferior accommodation in the neighborhood. Subletting or taking boarders is not permitted.

GERMANY.

TENEMENT DWELLINGS COMPANY, FRANKFORT ON THE MAIN.

This company (Aktienbaugesellschaft für kleine Wohnungen) commenced its activities in 1891. Its total share capital is 605,000 marks ($143,990), and there is besides a borrowed capital of 100,000 marks ($23,800), upon which latter 3½ per cent per annum is paid. The annual dividends paid from the beginning have been 3½ per cent, while the net profit for the fiscal year ending December 31, 1893, exclusive of profit on sale of land, was 4.24 per cent. The total amount of reserve set aside at the end of the same year was 52,957.15 marks ($12,603.80). The present estimated value of lands and model buildings belonging to the company is 717,558.26 marks ($170,778.87). The sum of 208.50 marks ($49.62) represented the loss of rental from unoccupied lodgings and nonpayment of arrearages during the year 1893. Rents are paid monthly in advance. They are brought by tenants to the office of the

company. Fifteen days' written notice is required of intention to leave. Two weeks' arrearage, at most, is allowed. Where the case is a worthy one the public relief authorities usually extend aid. The rents are considerably lower than those paid for fairly similar accommodation in the neighborhood. The following tables give an interesting exhibit of the occupations, earnings of the family, the cost of rent in the Yorkstrasse and Burgstrasse tenements, and the amount paid for rent in premises previously occupied:

OCCUPATIONS, EARNINGS, AND PRESENT AND FORMER RENTS OF TENANTS OF THE YORKSTRASSE TENEMENTS.

Occupation.	Earnings per week of—		Size of family.	Rent of present dwelling per month.	Former dwelling place.			Relation of present to former rent paid by tenants.	
	Husband.	Wife.			Rent per month.	Number of— Rooms.	Number of— Kitchens.	Less.	More.
Blacksmith	$4.76		2	$5.00	$2.86	1			$2.14
Bookbinder	4.76		4	4.28	3.33	1	1		.95
Bookbinder	4.76		5	5.24	5.00	2			.24
Bookbinder	4.76		2	5.24	5.95	1	1	$0.71	
Cooper	5.00		3	4.76	6.66	2	1	1.90	
Driver	5.95		7	6.19	6.19	2	1		
Engraver	3.57	$3.33	6	4.05	5.00	2		.95	
Foreman, fire company	7.14		5	5.95	6.19	2	1	.24	
Gardener	2.38		7	5.00	5.95	2	1	.95	
Gardener	4.76		5	6.19	11.90	3	1	5.71	
Glazier	5.24		6	4.76	4.28	2			.48
Hairdresser	5.24		6	5.95	9.76	3	1	3.81	
Harbor watchman	5.00		6	5.00	6.90	2	1	1.90	
Harbor watchman	5.00		4	4.76	3.57	2	1		1.19
Janitor	3.81		4	5.95	4.05	2	1		1.90
Joiner	5.00		3	5.00	7.86	2	1	2.86	
Joiner	4.28		4	4.28	3.81	1			.47
Laborer	5.00		4	3.81	10.00	3	1	6.19	
Laborer	4.28		5	3.81	7.14	2	1	3.33	
Laborer	4.28		5	4.05	5.95	3	1	1.90	
Laborer	3.33		4	4.05	4.76	2		.71	
Laborer	4.52		3	3.57	3.57	1	1		
Laborer	4.28		6	5.95	8.33	2	1	2.38	
Laborer	3.81		4	6.19	5.95	2	1		.24
Laborer	4.76		3	6.19	7.14	4	1	.95	
Laborer	5.24	$.48	6	5.23	6.66	2	1	1.43	
Laborer	3.81		6	5.24	8.09	2	1	2.85	
Laborer	4.76		3	6.19	7.14	2	1	.95	
Laborer	5.24		5	5.95	6.66	2	1	.71	
Laborer	4.76		4	3.81	3.57	1	1		.24
Laborer	4.28		6	4.28	3.81	1			.47
Lacquerer	4.28		3	4.05	9.52	3	1	5.47	
Letter carrier	6.64		3	5.00	5.24	2	1	.24	
Letter carrier	5.47		3	5.95	7.14	3	1	1.19	
Letter carrier	5.24		5	5.71	7.85	3	1	2.14	
Licensed messenger	2.86		5	5.71	5.71	2	1		
Licensed messenger	4.28		7	5.00	5.95	2	1	.95	
Licensed messenger	5.71		4	5.71	4.28	1	1		1.43
Licensed messenger and night watchman	3.81		8	4.28	7.14	2		2.86	
Locksmith	4.76		5	4.28	7.14	2	1	2.86	
Locksmith and night watchman	5.71		3	5.95	5.95	3	1		
Machinist	5.47		5	5.95	7.14	3	1	1.19	
Mail messenger	4.28		3	5.00	5.24	2	1	.24	
Mail messenger	7.14		5	5.95	8.81	3	1	2.86	
Mail messenger, retired	3.09		3	3.57	5.71	2	1	2.14	
Mail-parcel carrier	4.28		3	4.05	3.57	2			.48
Mail-parcel carrier	5.95		5	6.19	5.95	2	1		.24
Mason	5.71		4	4.76	5.24	2		.48	
Messenger	4.28		5	3.81	4.76	2	1	.95	
Messenger	5.24		6	5.71	8.33	2	1	2.62	
Messenger	4.28		6	5.71	5.47	2			.24
Messenger	4.28		5	5.00	8.33	3	1	3.33	
Messenger	4.05		3	5.00	4.76	1	1		.24
Messenger and night watchman	3.81		5	4.28	7.61	2	1	3.33	
Nurse (female)		2.86	3	3.81	3.33	1			.48

OCCUPATIONS, EARNINGS, ETC.—Concluded.

Occupation.	Earnings per week of—		Size of family.	Rent of present dwelling per month.	Former dwelling place.			Relation of present to former rent paid by tenants.	
	Husband.	Wife.			Rent per month.	Number of— Rooms.	Number of— Kitchens.	Less.	More.
Packer	$3.57		2	$5.00	$5.95	2		$0.95	
Packer	4.28		2	5.24	5.24	2			
Passementerie maker	4.76		5	6.19	6.66	2	1	.47	
Passementerie maker	3.81		2	5.71	5.47	2	1		$0.24
Portfolio maker	3.57		4	5.95	7.38	2	1	1.43	
Printer	5.71		5	4.76	2.86	1	1		1.90
Railroad yard switchman	3.81		4	4.76	4.76	2	1		
Roofer	4.76		6	5.71	8.52	3	1	2.81	
Seamstress		$2.86	2	3.81	2.38	1			1.43
Shoemaker	4.28		4	4.76	7.14	2	1	2.38	
Shoemaker	4.28		7	3.81	3.57	2			.24
Shoemaker	5.95		4	5.95	4.76	2			1.19
Shoemaker	3.33		6	5.95	9.04	3	1	3.09	
Shoemaker	4.28		3	4.76	4.76	1	1		
Shoemaker	3.57		6	5.24	5.95	2	1	.71	
Shoemaker	2.86		4	5.95	6.90	2	1	.95	
Shoemaker	2.14		3	3.81	4.76	2		.95	
Stage carpenter	7.14		5	5.95	5.00	2	1		.95
Stonecutter	4.05		5	5.00	5.71	2		.71	
Street railway employee	3.81		2	5.00	5.47	2		.47	
Street railway employee	4.28		4	4.76	4.76	2			
Swimming school teacher	4.76		5	6.19	7.62	2	1	1.43	
Tailor	3.33		3	5.95	4.28	2	1		1.67
Tailor	4.28		4	5.95	4.76	2	1		1.19
Tailor	3.57	.71	8	4.28	4.28	2			
Tinsmith	5.95		5	4.28	5.23	3	1	.95	
Tinsmith	5.71		3	5.71	9.99	4	1	4.28	
Tinsmith	4.76		4	4.28	7.37	3	1	3.09	
Tinsmith	4.76		3	4.76	4.28	1	1		.48
Weaver, ribbon	4.28		2	4.28	6.18	3	1	1.90	
No occupation (widow)		4.76	2	3.81	5.24	2	1	1.43	
No occupation (widow)		3.33	3	5.95	5.95	2	1		
Not specified (widow)		4.76	2	4.04	3.09	2			.95
Not specified (widow)		3.33	2	3.57	4.28	1	1	.71	
Not specified (widow)		2.86	2	3.57	5.00	2	1	1.43	

Persons paying less than formerly	54
Persons paying more than formerly	26
Persons paying same as formerly	10
Total	90

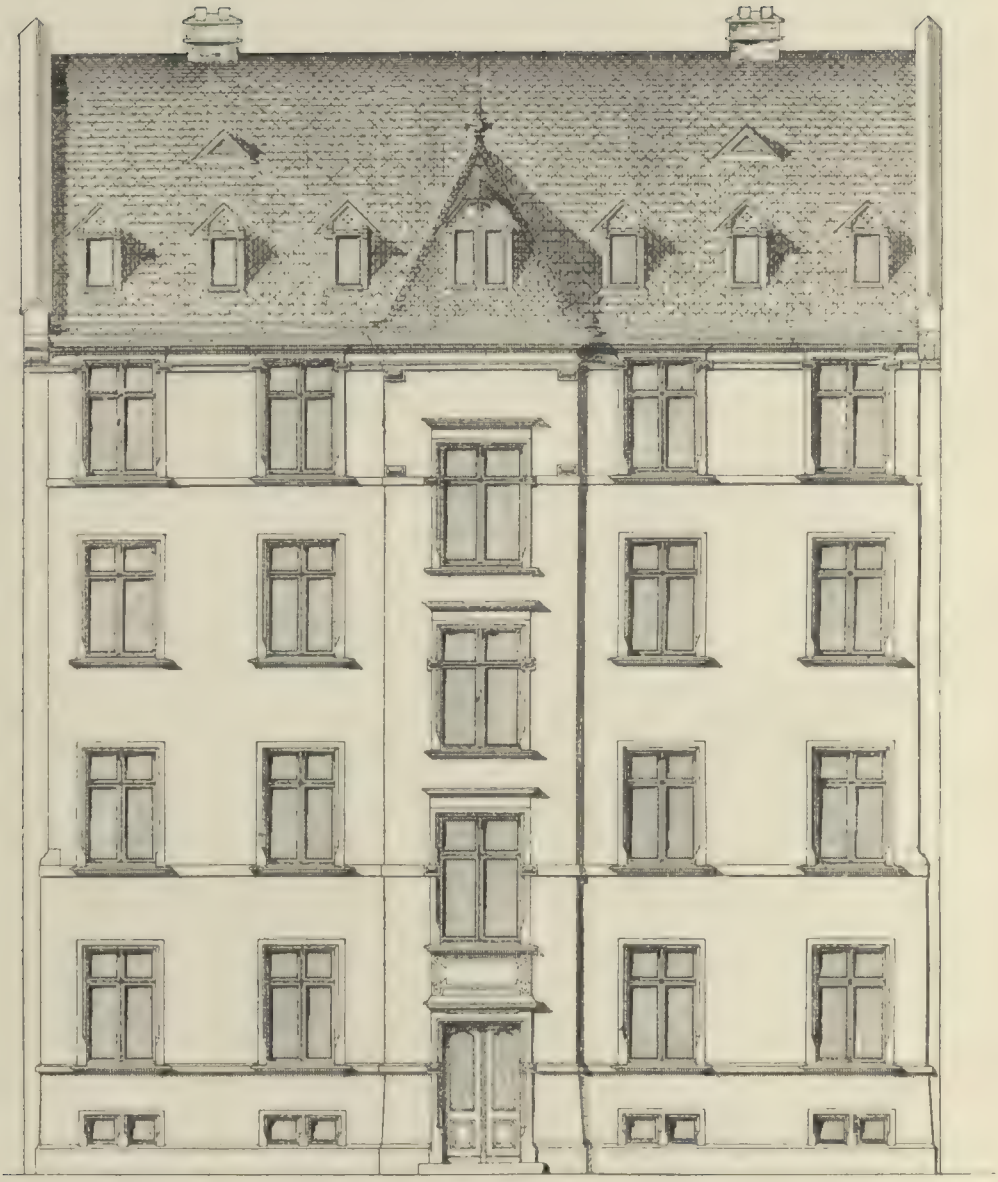
OCCUPATIONS, EARNINGS, AND PRESENT AND FORMER RENTS OF TENANTS OF THE BURGSTRASSE TENEMENTS.

Occupation.	Earnings per week of—		Size of family.	Rent of present dwelling per month.	Former dwelling place.			Relation of present to former rent paid by tenants.	
	Husband.	Wife.			Rent per month.	Number of— Rooms.	Number of— Kitchens.	Less.	More.
Baker	$4.28		6	$3.57	$2.86	1	1		$0.71
Baker	4.05		3	3.57	4.28	1		$0.71	
Blacksmith	5.00	$1.19	2	3.57	7.14	2	1	3.57	
Butcher			6	7.14				Shop.	
Calciminer	4.28	.95	3	3.33	3.57	1	1	.24	
Carpenter	4.28	2.38	2	3.57	4.05	1	1	.48	
Carpenter	5.24		3	5.71	4.76	1	1		.95
Charwoman		3.57	4	3.33	4.76	2		1.43	
Charwoman		2.86	5	3.57	4.28	2	1	.71	
Charwoman		2.38	3	3.33	2.86	1			.47
Charwoman		2.86	2	3.57	4.28	1	1	.71	
Charwoman		3.57	3	3.57	6.43	2	1	2.86	
Charwoman		3.33	4	3.33	5.47	2	1	2.14	
Fireman	4.05	2.38	2	3.57	4.28	1	1	.71	
Flagman, railroad	4.76		3	3.33	3.81	2	1	.48	
Foreman	5.00		5	4.76	8.57	3	1	3.81	
Foreman fire company and janitor	7.14		6	5.71	3.81	2	1		1.90

OCCUPATIONS, EARNINGS, ETC.—Concluded.

Occupation.	Earnings per week of—		Size of family.	Rent of present dwelling per month.	Former dwelling place.			Relation of present to former rent paid by tenants.	
	Husband.	Wife.			Rent per month.	Number of— Rooms.	Number of— Kitchens.	Less.	More.
Glazier	$6.19		6	$3.57	$7.14	2	1	$3.57	
Grocer			1	5.71	8.80	3	1	3.09	
Grocer			7	7.14				Store.	
Iron founder	4.28		3	3.33	3.57	1		.24	
Joiner	5.24		6	3.81	4.28	2	1	.47	
Joiner	5.47		3	3.57	3.57	1	1		
Joiner	5.00		4	3.57	4.76	2		1.19	
Joiner	5.71		6	3.81	8.33	3	1	4.52	
Joiner	5.71		4	3.57	4.05	1	1	.48	
Joiner	4.76		7	3.57	3.33	1	1		$0.24
Joiner	5.71		4	5.24	8.81	2	1	3.57	
Joiner	5.00		4	5.24	7.14	2	1	1.90	
Laborer	4.28	$0.71	3	3.57	2.86	1			.71
Laborer	4.28		4	3.57	2.86	1	1		.71
Laborer	3.81	1.19	5	3.57	3.93	2		.36	
Laborer	4.76	.48	4	3.33	4.28	2	1	.95	
Laborer	4.28		6	3.57	2.86	1			.71
Laborer	4.28		8	3.57	7.62	3	1	4.05	
Laborer	4.28		5	3.57	2.38	1			1.19
Laborer	4.28	2.38	7	3.81	5.24	2	1	1.43	
Laborer	4.76		5	3.33	2.38	1			.95
Laborer	3.81	2.86	3	3.81	3.33	2			.48
Laborer	4.76		5	3.57	3.09	2	1		.48
Laborer	4.28		3	3.57	4.52	2	1	.95	
Laborer	5.00		4	3.33	2.86	2	1		.47
Laborer		2.86	2	3.57	6.19	2	1	2.62	
Laborer	4.76		5	3.57	3.81	2	1	.24	
Laborer	4.28	2.86	2	3.81	4.05	2		.24	
Laborer	4.28		5	3.33	3.81	1		.48	
Laborer	4.76	1.19	3	3.33	2.86	1			.47
Laborer	5.47		4	5.24	10.71	3	1	5.47	
Laborer	4.76		7	4.76	6.19	2	1	1.43	
Laborer	4.76		6	4.76	5.95	2	1	1.19	
Laborer	5.00	.95	4	4.76	4.28	2	1		.48
Laborer	4.28		6	5.71	5.95	3	1	.24	
Laborer, canal	5.24		4	5.24	2.86	2	1		2.38
Licensed messenger	3.81		5	3.57	7.14	2	1	3.57	
Licensed messenger	4.76		5	3.33	2.86	1	1		.47
Licensed messenger	4.28		6	3.81	7.62	3	1	3.81	
Licensed messenger	3.57	1.43	7	3.81	5.00	2	1	1.19	
Locksmith	4.28	.48	3	3.57	7.14	2	1	3.57	
Locksmith	5.47		3	5.71	4.76	1	1		.95
Locksmith	7.14		6	5.71	4.28	3	1		1.43
Locksmith	4.28	.95	3	4.76	4.05	1	1		.71
Locksmith	5.47		8	4.76	10.00	3	1	5.24	
Machinist	7.14	.48	4	3.81	4.17	3		.36	
Machinist	7.14		3	5.24	5.95	2	1	.71	
Mail messenger	7.14		5	3.57	4.52	4	1	.95	
Mail messenger, assistant	4.52		2	3.33	1.43	1			1.90
Mason	6.43		3	3.81	3.57	1			.24
Member fire company	5.47		5	3.81	6.67	2	1	2.86	
Messenger	4.52		4	3.57	7.14	2	1	3.57	
Messenger	4.76		5	3.33	5.83	2	1	2.50	
Messenger	4.76		4	3.81	4.52	2		.71	
Messenger	4.05		7	5.24	4.05	2			1.19
Messenger	4.76		4	5.24	5.00	2	1		.24
Messenger	4.76		4	5.24	6.66	2	1	1.42	
Messenger	4.28		2	5.24	2.86	1			2.38
Nurse (female)		3.57	3	3.33	3.33	2	1		
Polisher, stone	4.76		7	3.81	5.71	2	1	1.90	
Post office employee	4.05		2	3.57	4.76	2		1.19	
Shoemaker	3.09	1.19	5	3.81	7.85	2	1	4.04	
Shoemaker	4.76		7	3.57	4.76	2	1	1.19	
Shoemaker	3.57		5	3.57	6.43	2	1	2.86	
Shoemaker	4.28		4	3.57	2.38	1	1		1.19
Shoemaker	4.52		6	5.23	5.47	2	1	.24	
Teamster	4.28	1.19	4	3.33	2.86	1			.47
Teamster	4.28	.95	3	3.81	4.05	1	1	.24	
Tinsmith	4.76		5	3.81	5.00	2	1	1.19	
Turner, iron	5.71		3	3.57	4.76	2		1.19	
Turner, screws	5.71		6	3.81	3.33	2	1		.48

Persons paying less than formerly	56
Persons paying more than formerly	28
Persons paying same as formerly	2
Not reported	2
Total	88



Front elevation.

TENEMENT DWELLINGS COMPANY, FRANKFORT ON THE MAIN, GERMANY—TWO-ROOM DWELLINGS.

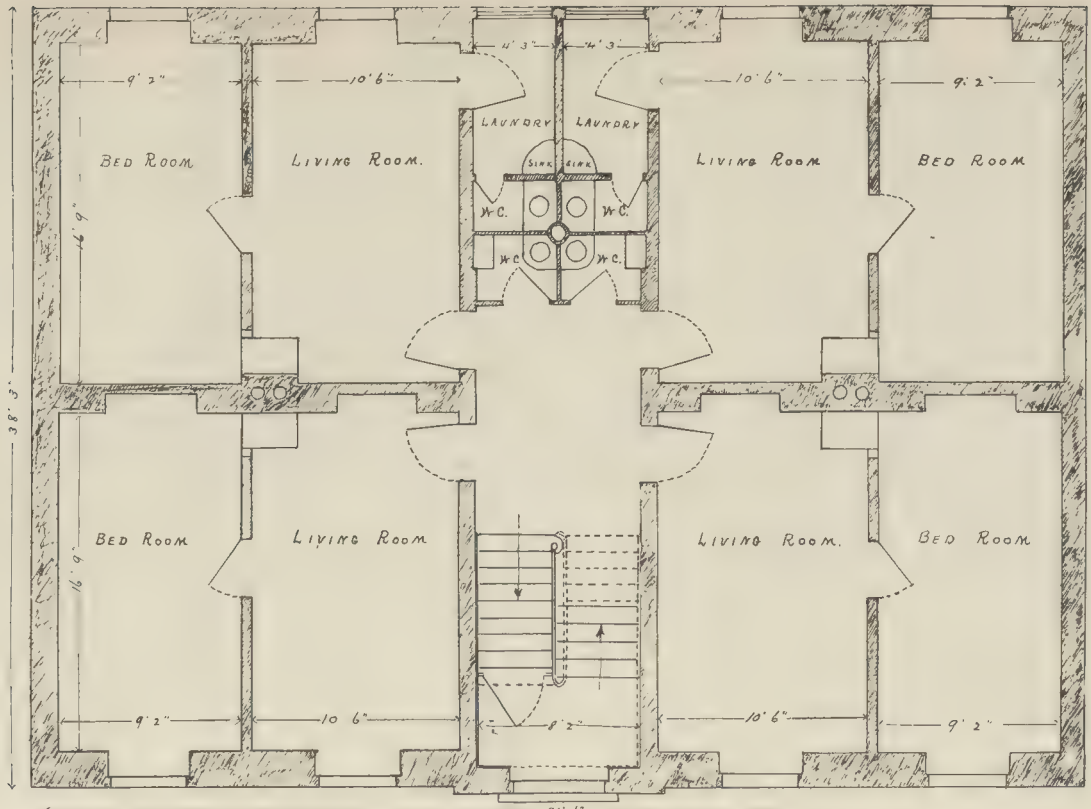
PLAN NO. 41 A.



Rear elevation

TENEMENT DWELLINGS COMPANY, FRANKFORT ON THE MAIN, GERMANY · TWO-ROOM DWELLINGS.

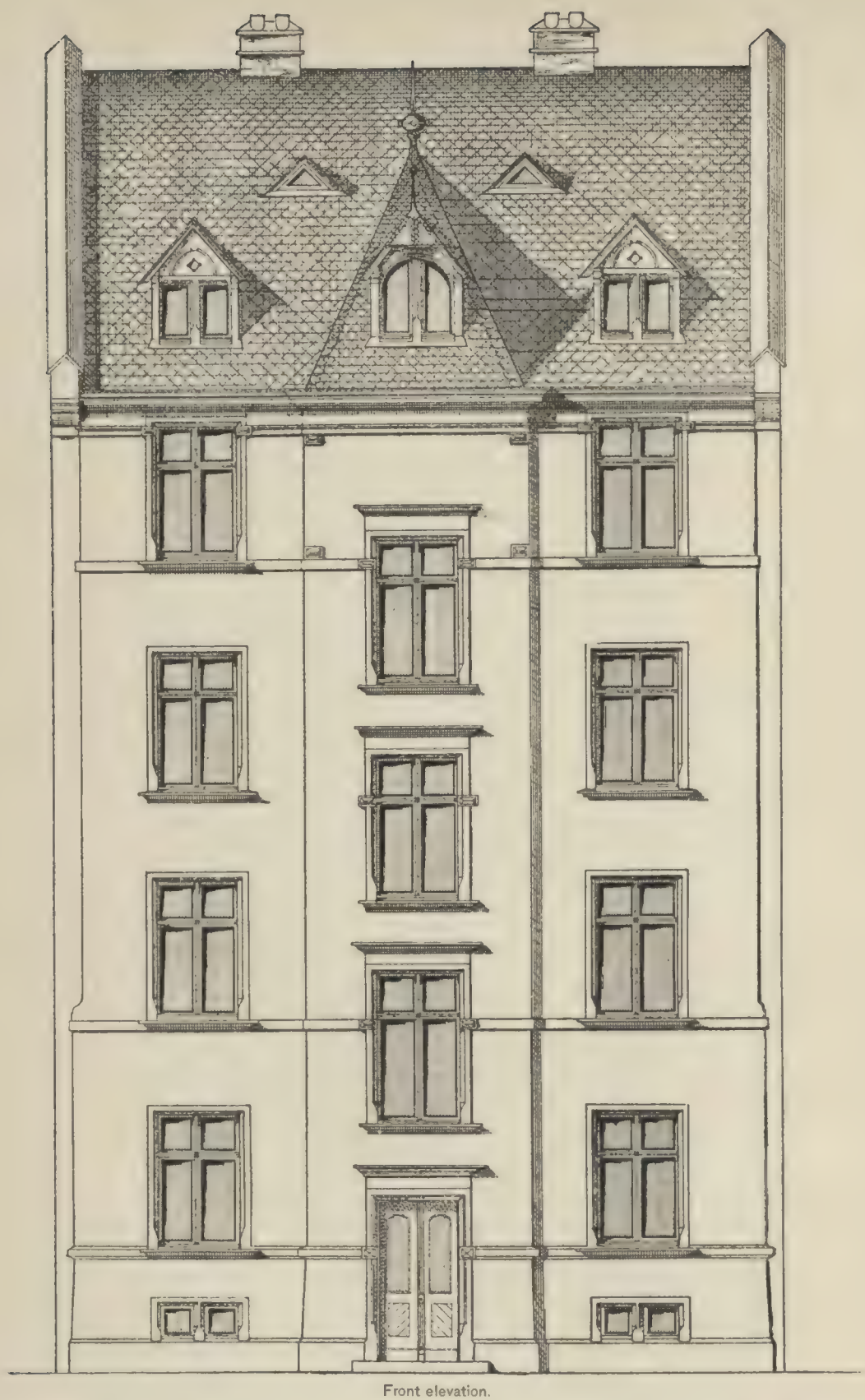
PLAN NO. 41 B.



Ground floor.

TENEMENT DWELLINGS COMPANY, FRANKFORT ON THE MAIN, GERMANY TWO-ROOM DWELLINGS.

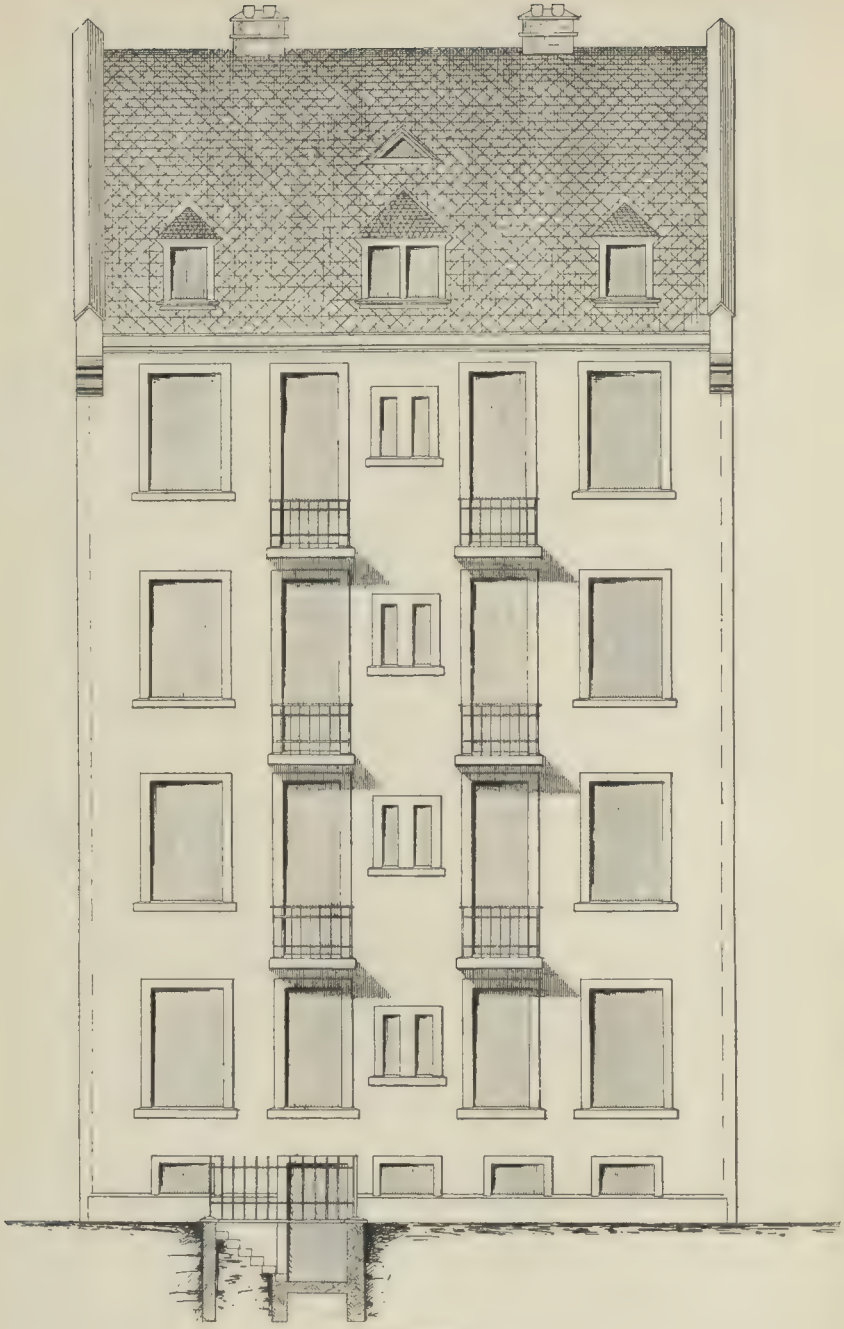
PLAN NO. 41 c.



Front elevation.

TENEMENT DWELLINGS COMPANY, FRANKFORT ON THE MAIN, GERMANY—THREE-ROOM DWELLINGS.

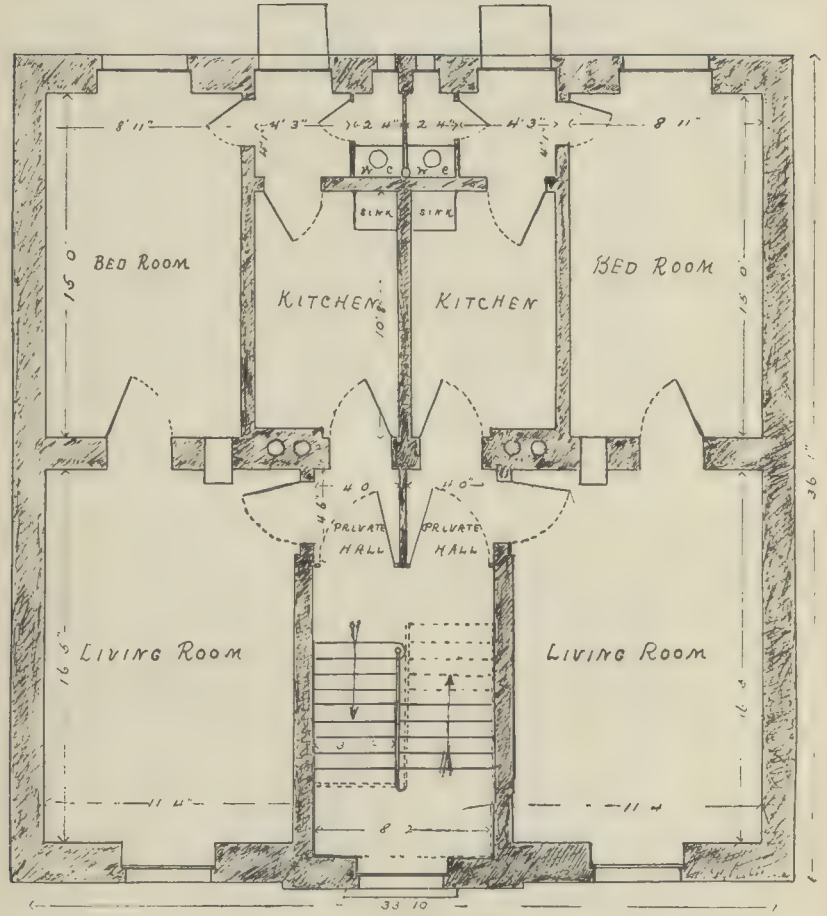
PLAN NO. 42 A.



Rear elevation.

TENEMENT DWELLINGS COMPANY, FRANKFORT ON THE MAIN, GERMANY—THREE-ROOM DWELLINGS.

PLAN NO. 42 B.



Ground floor.

TENEMENT DWELLINGS COMPANY, FRANKFORT ON THE MAIN, GERMANY—THREE-ROOM DWELLINGS.

PLAN NO. 42 C.

About one-half the occupants live within half a mile of their places of employment and the others less than a mile.

The accompanying plans (plans Nos. 41 A, 41 B, and 41 C and 42 A, 42 B, and 42 C) show front and rear elevations and ground floor plans of buildings for two-room tenements and for three-room tenements.

The frontage of the lot is about 205 feet 9 inches on one street and 157 feet 2 inches on another. The depth is irregular, averaging, probably, 70 feet 10 inches. About one-half of the area has been built upon. The open space is at the rear and is partly paved. Drying clothes is not permitted in the yard, as it interferes with the children's play. The buildings are four stories high and are constructed of rough brick, covered with plaster and smoothed in imitation of stone. Trimmings are of brownstone. The roofing is of slate, staircases of oak, and corridors are paved in asphalt. Interior walls are of brick, and the wooden rafters are filled in with mortar. The buildings are therefore fairly fireproof. There is a cellar to the buildings paved in cement and used for storage purposes. There are two distinct types of buildings. One type is constructed for two-room tenements, and has one corridor for four families on each floor, the corridors being simply part of the staircase landing. The corridors are 8 feet 2 inches wide by 11 feet 10 inches long. At one end are water-closets and sinks separated by doors and a brick wall, at the other end is the staircase. The staircases have no turn, a landing being placed halfway between the floors; staircases are 3 feet 7 inches wide. A window on each floor lights the staircase.

The other type contains three room tenements and has two families on each floor. At the head of the stairway is a landing 8 feet 2 inches long by 3 feet 11 inches wide, and communicating with this is a private corridor 3 feet 11 inches by 4 feet 7 inches for each family; this runs into the kitchen and the living room. The tenements are self-contained in every respect, the water-closets being reached by another private hallway at the rear, which opens to the bedroom and to the kitchen. There is through ventilation for all rooms, the bed and the living rooms by connecting doors and windows, the kitchen by the private corridor and stairway on the one side and private hallway on the other, all of which communicate directly with the open air. Closets in the second type described communicate directly with the open air and are well ventilated. Closets in the first type are ventilated from above.

There are no special arrangements to prevent promiscuous mingling of occupants upon stairways and landings, except to prohibit it in a general regulation. Water-closets are of modern construction and are well flushed. Soil pipes are placed within the walls between the closets and run directly to the sewer; they are open above the roof. A sink is placed in each kitchen. An unlimited supply of water is allowed, tenants having to pay a special water rate. Coal is used for heating and oil for lighting within the dwellings. The front door is closed at

10 p. m., but all tenants are provided with keys. Stairs and corridors are lighted from dusk to 9 p. m. in winter and to 9.30 p. m. in summer. The common stairways and corridors are cleaned by employees of the company. Washing is done in the dwellings and drying in the attic. Regulations prescribe the days when families may use the drying room. A stove, with boiler attached, is placed in each kitchen. A portable receptacle for each family serves as a garbage box, and is removed twice a week by public scavengers. There are no pantries or clothespresses. All rooms not used as kitchens are provided with ornamental iron stoves, which may also be used for heating flatirons. There are balconies on each floor in houses of type 1, and one for each family in houses of type 2. The walls of the rooms are papered. In type 1 kitchens are 17 feet by 10 feet 6 inches and bedrooms 17 feet by 9 feet 2 inches. In type 2 kitchens are 10 feet 8 inches by 6 feet 7 inches, bedrooms 15 feet by 8 feet 11 inches, and living rooms 16 feet 5 inches by 11 feet 4 inches. Rentals for two-room tenements vary from 14 marks ($3.33) in the fourth story to 16 marks ($3.81) in the second story. In the first and third stories this style of accommodation rents for 15 marks ($3.57) per month. Three-room tenements rent for 20 marks ($4.76) in the fourth story, 24 marks ($5.71) in the second story, and 22 marks ($5.24) in the first and third stories.

This company owns sixteen buildings, containing 97 two-room tenements, 24 two-rooms with hallway, and 55 three-room tenements.

BERLIN MUTUAL BUILDING COMPANY, BERLIN.

The location of the building belonging to this company (Berliner Gemeinnützige Baugesellschaft) which has been selected for description is at No. 12 Buchholzerstrasse. About 50 per cent of the total area is covered with buildings. The open space is a court in the rear, partitioned off so that each section of the block is independent of the others. The building is of brick, with tile roofing and stone staircases. No further means have been taken to make the building fireproof. There is a cellar paved with bricks and divided by stone and brick partitions into small storage cells. Staircases are wide and ventilated by double windows. Each tenement has a small private hallway. Every family is thus well isolated. Each tenement opens both on the street and court, affording through circulation. Families occupying three-room and four-room tenements have separate water-closets, but occupants of two-room tenements have one closet for every two families. Closets have been placed inside the building, are reached only from the staircase landing, and are provided with ventilating shafts and windows connecting directly with the open air. They are flushed by means of lifting knobs. Water and waste from the kitchens and closets run directly to the sewers through interior conduits. Rain water also runs to the sewer. Heating is done by porcelain stoves within the tenements. Stairs are lighted by gas from dusk until 10 p. m., but

tenants as a rule use oil lamps in their own rooms. Laundries have been placed in the cellar, and each family has the use of one for two days out of every month. Each kitchen has a large range with oven. Receptacles for garbage are placed in the yard, to which all refuse must be carried; the company pays for its periodical hauling away. Clothes-presses have not been placed in tenements, the people preferring their own wardrobes. There are no window shutters, balconies, or porches. Each tenement has been furnished with a doorbell. The bedroom and kitchen walls are painted; the living room is papered. Floors are oiled and ceilings are frescoed. Externally the walls have been covered with mortar in imitation of stone.

Rentals of two-room tenements vary from 150 marks to 205 marks ($35.70 to $48.79) per annum. Three-room tenements rent for 300 marks to 315 marks ($71.40 to $74.97) per annum. A few of the smaller three-room tenements rent for 225 marks ($53.55) per annum.

In the prevailing type of two-room tenements the kitchens are 13 feet by 9 feet 4 inches, and the bedrooms 17 feet 6 inches by 12 feet 11 inches. Average sized three-room tenements contain kitchens 13 feet by 7 feet 1 inch, living rooms 17 feet 6 inches by 13 feet 1 inch, and bedrooms 17 feet 11 inches by 8 feet 6 inches. The private corridor is 4 feet 1 inch by 7 feet 1 inch. Ceilings are 9 feet 4 inches high.

The company commenced operations in 1849. In 1892 it possessed fifty buildings, containing 491 tenements; 219 were two-room tenements, 234 three-room tenements, and 38 four-room tenements. The company was organized on a purely philanthropic basis. The original stock was subscribed to form a fund for the purpose of acquiring real estate and providing homes for the poorer working people. Dividends were limited to 4 per cent, and all increase in the value of the company's property, either by added increment to its real estate or by increased building construction, was to be devoted to the fund itself. In the accounts of the fund, therefore, the share capital is counted as a debt against it; nothing more. Up to October 31, 1893, the actual expense for land bought about forty-five years ago and the buildings erected from time to time since amounted to 1,642,631.72 marks ($390,946.35), of which about 200,000 marks ($47,600) was actually paid for land. In addition to this a legacy (Alexandra Stiftung) is also managed by the company, the ground and buildings representing the investment of which had cost up to October 31, 1893, 1,031,991.90 marks ($245,614.07). This makes a total of 2,674,623.62 marks ($636,560.42) paid out for land and houses. It is on this amount that rents are based.

An official estimate made in May, 1892, of the actual value of these properties placed it at 4,621,039 marks ($1,099,807.28). Subtracting from this amount the share capital, 208,500 marks ($49,623), the money borrowed on mortgages, 623,400 marks ($148,369.20), and miscellaneous liabilities, 203,200 marks ($48,361.60), amounting altogether

to 1,035,100 marks ($246,353.80), there was left a balance of 3,585,939 marks ($853,453.48), which represented the value of the original fund at that date, free of all incumbrances.

The company can issue new stock to the amount of 1,000,000 marks ($238,000), but new stock has never been issued except at times when money was needed for building purposes and could not be obtained for 4 per cent or less. Four per cent has been paid to stockholders since the beginning of the enterprise. The company has had to pay from 3⅝ to 4 per cent for money borrowed on buildings erected on its own account and 4¼ per cent on buildings erected on account of the Alexandra fund. So far nothing has been loaned by the government, although efforts are now being made to secure a loan from it at a low rate of interest.

The loss of rental from unoccupied lodgings has been practically nothing during recent fiscal years. Rents are paid quarterly in advance to the resident agent at his office. Three months' notice is required of intention to quit. Arrearages of rent almost never occur, and when they do the treatment of the tenant largely depends upon circumstances. Rentals have remained fixed during the last ten years, and they are about 25 per cent cheaper than for practically similar accommodation in the neighborhood. It is calculated, however, that they absorb about 20 per cent of the earnings of the heads of tenant families. The average duration of tenancy has been twenty years. Subletting is not permitted, and boarders are likewise prohibited under the regulations, but they are, nevertheless, taken.

The occupations of 458 heads of tenant families are as follows: There are 83 proprietors of stores and workshops, with average annual earnings of 1,000 marks to 1,500 marks ($238 to $357); 147 artisans and laborers, with average annual earnings of 1,000 marks ($238); 13 clerks and salesmen, with average annual earnings of 1,000 marks ($238); 75 government employees, with average annual earnings of 500 marks to 600 marks ($119 to $142.80); 13 functionaries, with average annual earnings of 500 marks to 650 marks ($119 to $154.70); 127 widows and spinsters variously employed, with average annual earnings of 500 marks ($119).

Persons having a yearly income under 500 marks ($119) or over 3,000 marks ($714) are ruled out as tenants. Porters, janitors, and other assistants are usually selected from among the oldest tenants, who are generally functionaries. They receive no salary, nor are they granted reduced rentals. They gladly assume the duties of keeping order, lighting the halls, etc., for the honor of holding the position. A small gratuity, usually 30 marks ($7.14), is given them at Christmas. In connection with the company's buildings there are four day nurseries, which are sustained by other philanthropic societies. They have rooms in the building and pay reduced rentals.

SOCIETY FOR THE IMPROVEMENT OF TENEMENTS, BERLIN.

This company (Verein zur Verbesserung der kleinen Wohnungen) has purchased six old houses, renovated them, and is renting them at the lowest possible figure. It has constructed no new buildings. Up to 1891 it had not paid any dividends, all profits being turned into the reserve fund, which then amounted to 22,381.22 marks ($5,326.73). The net profits for 1891 were sufficient to have paid nearly 2 per cent had they been divided. The estimated value of the property of the company is 925,993.43 marks ($220,386.44). The rent roll during the fiscal year 1891 amounted to 60,329.08 marks ($14,358.32). The rent for single rooms varies from 7.75 marks to 14 marks ($1.84 to $3.33) per month. Two-room tenements rent for from 10.25 marks to 25.50 marks ($2.44 to $6.07) per month; three-room tenements, 15 marks to 63.25 marks ($3.57 to $15.05) per month; four-room tenements, 31 marks to 63.50 marks ($7.38 to $15.11) per month; five-room tenements, 52.50 marks ($12.50) per month. The company possesses 205 tenements, which in 1891 were inhabited by 893 people. Rents are paid monthly, and the system of collection by ladies is made use of. The average rental of this property, which was formerly 390 marks ($92.82) per annum, has been reduced to 250 marks ($59.50) since it came into the possession of the company, while the net return from the property has been greater than previously. The majority of the tenants belong strictly to the laboring population.

The annual report for 1892 says:

In the management of our houses ethical aims have been leading features, and we believe that we can further the same by a new arrangement made during this year in accordance with the Miss Octavia Hill system. We have contracted with a ladies' committee for the collection of a large part of the rents in our smaller tenements since May, 1891. By this means the ladies have been brought into constant intercourse with the tenants and have endeavored to gain their confidence. They have opportunities for giving advice in many ways, as to bringing up children, family hygiene, etc., and they have often succeeded in obtaining suitable employment for tenants, thereby preventing misery and suffering. The company has by this means come nearer to accomplishing its aim, which is to bring to the attention of tenants the fact that they are living in houses owned by a society for public utility, in which, although regulations, necessarily strict, exist regarding payment of rent and interior management, every effort is made to comply with their wishes in regard to keeping the dwellings in good condition, as well as to give careful attention to their personal interests from a public-spirited point of view. We hope to succeed in still further extending the scope of the work of the ladies and to organize a regular institution, in which a new ladies' society will be called into existence to work in our houses, and will, hand in hand with our company, foster its ethical aims.

PROPOSED TENEMENTS OF VALENTIN WEISBACH, BERLIN.

Valentin Weisbach, president of the Society for the Improvement of Tenements, was in 1893 about to construct tenement houses on land which he owned in the outskirts of Berlin, according to the accompanying plans (plans Nos. 43 A and 43 B).

The buildings will be five stories high, containing accommodation for from ten to twelve families in each separate division. The size of ordinary tenements will be two rooms and kitchen for a family. This is in deference to a prevailing practice in Berlin, where rentals are so high that lodgers have to be taken. The rent will be the same as that now charged for a single room and kitchen in other parts of Berlin. This plan will help the single man to secure good accommodations, while it will not run contrary to the acquired habits of the people.

MEYER'S MODEL TENEMENT BUILDINGS, LEIPSIC.

Leipsic has developed industrially to a remarkable extent during the last twenty-five years, and the need for housing has correspondingly grown. Houses that were built originally for the use of working people have been resold at advanced prices, and the rents, already high, relative to income, have been increased by the new proprietors. Mr. Herrmann J. Meyer, a wealthy philanthropist, recognizing this fact, determined to undertake the provision of model dwellings, fixing the rent on the basis of 3 per cent net on his investment, and spending the net income each year in extending the work. In this plan he has followed the conceptions underlying the Peabody trust.

A large plot of land was purchased, having a total area of 158,829 square feet. It has been laid out as shown in the accompanying plan (plan No. 44 A).

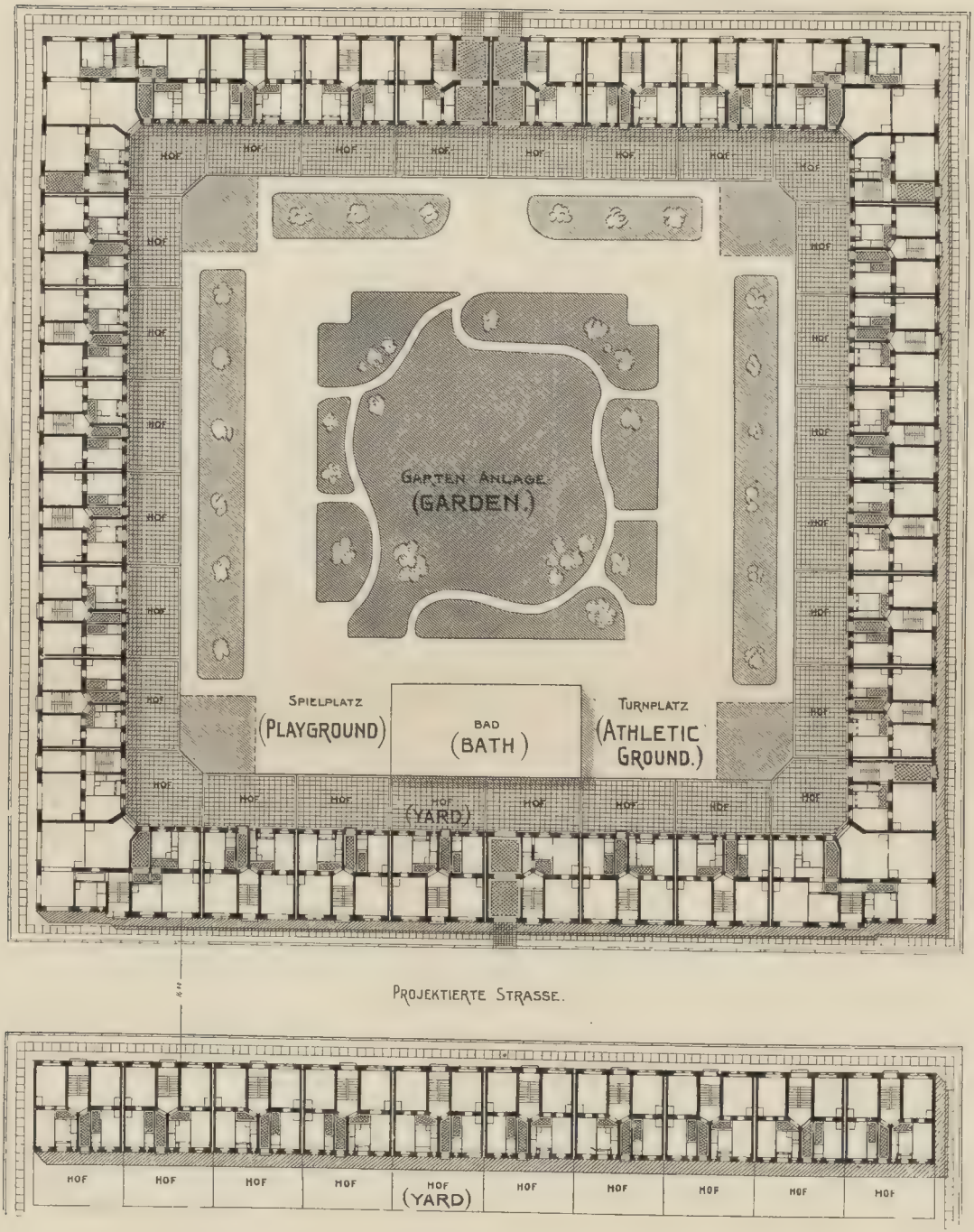
About 28 per cent of the ground has been built upon. The open space is in the form of a court in the center, which has been divided into numerous small gardens, each reached by a gravel walk. In the center is a space for drying clothes, and at one corner is a playground for children. Each tenant has his own space fenced and locked in. The spaces cost the tenants a rental of 7.80 marks ($1.86) per year. The drying ground and playground are for the free use of occupants. Many of the tenants have built small summer houses on their spaces, and nearly all have planted flowers. In the summer time picnics are often held, at which tenants entertain their outside friends.

The buildings are four stories high and built of brick. The roofing is of tiles, and the staircases are built of oak. Each separate section has a staircase, and access from one section to the other can easily be had over the roof. Aside from this there are no special arrangements to provide escape in case of fire. The buildings have a cellar paved with bricks, which is used for storage purposes, and there is space partitioned off for each family. The laundry is also situated in the cellar.



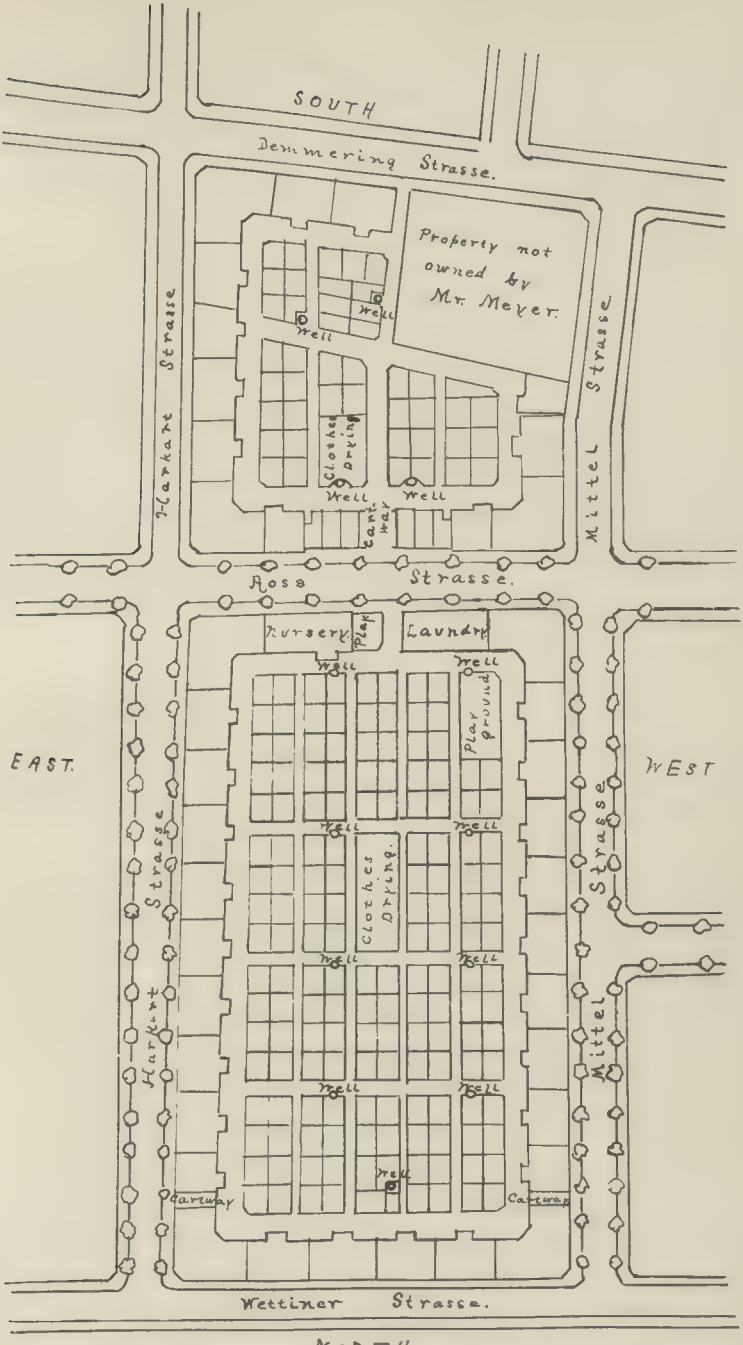
PROPOSED TENEMENTS OF VALENTIN WEISBACH, BERLIN, GERMANY.

PLAN NO. 43 A.



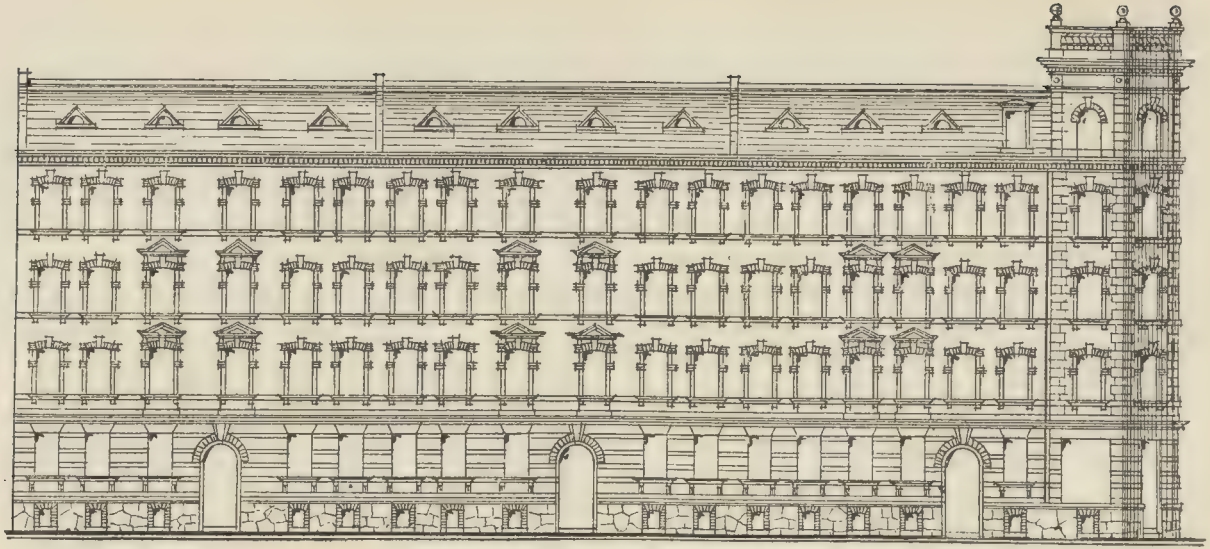
PROPOSED TENEMENTS OF VALENTIN WEISBACH, BERLIN, GERMANY.

PLAN NO. 43 B.



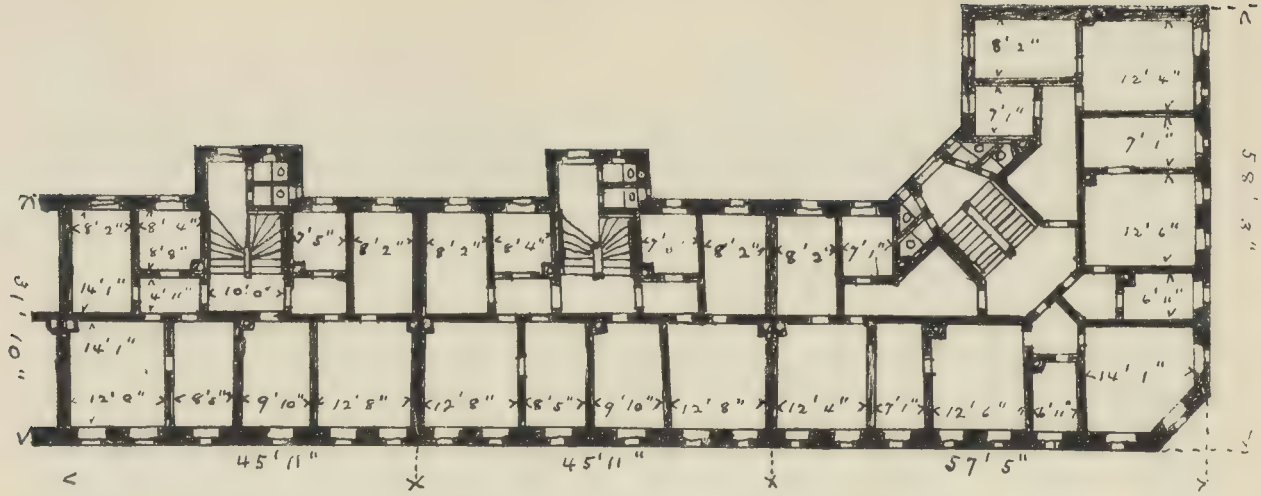
MEYER'S TENEMENT BUILDINGS, LEIPSIC, GERMANY.

PLAN NO. 44 A.



MEYER'S TENEMENT BUILDINGS, LEIPSIC, GERMANY.

PLAN NO. 44 B.



MEYER'S TENEMENT BUILDINGS, LEIPSIC, GERMANY.

PLAN NO. 44 C.

About twelve tenements have been provided for in each section. The corridors, including the staircases, are 10 feet wide and 14 feet long, with an extension of 6 feet leading to the privies. The staircases are well lighted by windows, and at night gas is used in the corridors. Each of the tenements, except those of one room only, has a private hallway adjoining the main corridor and staircase. One door from a tenement opens directly to the corridor and stairway. Corridors are too small to allow promiscuous mingling. The private hallway of each tenement is considered another means of preserving the independence and isolation of the individual family. All tenements, except those of only one room, have through circulation from front to rear. The latter also may have through circulation by means of the corridor windows. A privy is provided for each family. The privies are dry, a disinfectant being used in the place of water. The refuse falls through a pipe to a pit, which is cleaned once a month. They are situated in an extension, and are reached from the corridor on each floor. No water has been put in the buildings. Wells are placed in the court, to which all tenants have access. An unlimited supply is available at all times. Halls and courts are lighted by gas, but in the rooms only oil lamps are used. An iron range has been placed in each kitchen. A garbage receptacle for the common use of tenants of each section of the buildings has been placed in the court, and refuse must be carried to it by each individual family. There are no clothespresses. Earthenware stoves are used by the tenants for heating, many of which also have arrangements for cooking. Walls are colored in oil.

As regards exterior decorations the front elevation, as displayed in the accompanying sketch (plan No. 44 B), gives the best idea. The general plan of the disposition of rooms in an upper story of a portion of the block is likewise shown (plan No. 44 C).

Single-room tenements are 14 feet 1 inch by 9 feet 10 inches. In three-room tenements the kitchen is 8 feet 8 inches by 7 feet 5 inches, the living room 14 feet 1 inch by 12 feet 8 inches, and the bedroom 14 feet 1 inch by 8 feet 2 inches. In four-room tenements the kitchen is 8 feet 8 inches by 8 feet 4 inches, the living room 14 feet 1 inch by 12 feet 8 inches, and the two bedrooms 14 feet 1 inch by 8 feet 2 inches and 8 feet 5 inches, respectively. Ceilings are 9 feet 6 inches high. The private hallways, already referred to, are 4 feet 11 inches by about 8 feet. The preceding dimensions are for tenements in only one of the twenty-six houses composing the block, but they may be considered as fairly representative of the whole.

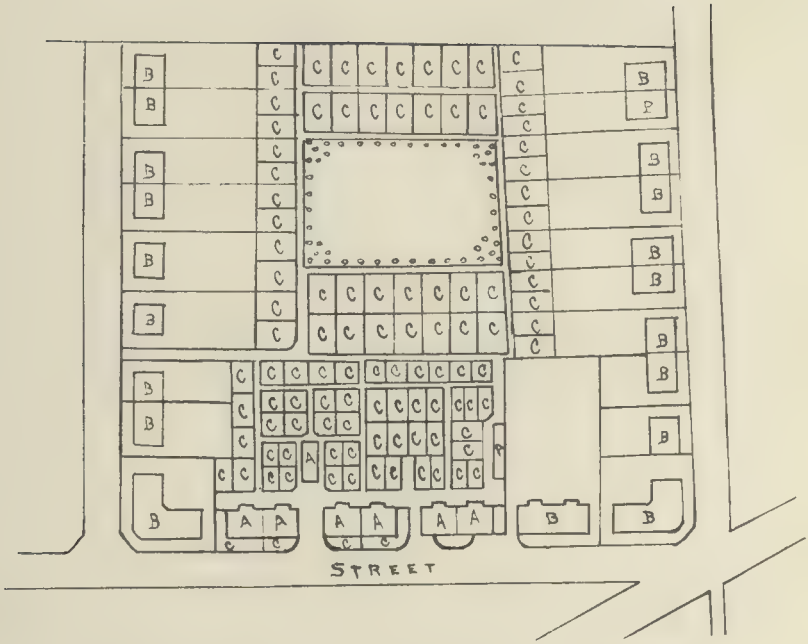
The annual rental of one-room tenements is 41.60 marks ($9.90) in the fourth story, 52 marks ($12.38) in the third story, and 62.40 marks ($14.85) in the second story. The annual rental of three-room tenements is 130 marks ($30.94) in the fourth story, 145 marks ($34.51) in the third story, 160 marks ($38.08) in the second story, and 150 marks ($35.70) in the first story. The annual rental of four-room tenements is 155 marks

($36.89) in the fourth story, 180 marks ($42.84) in the third story, and 200 marks ($47.60) in the first and second stories.

At the present time 35 house divisions have been constructed—26 in one block and the remainder in another. These contain 353 tenements, numbering in all 1,206 rooms and 6 stores. The 346 tenements rented at the end of the last fiscal year (March, 1894) contained 309 families and 37 single persons. The total population was made up of 627 adults and 846 children, in all 1,473 persons. The average size of a family was 4.77 people. The average air space per inhabitant was 839½ cubic feet. Four additional houses are nearing completion at the present time.

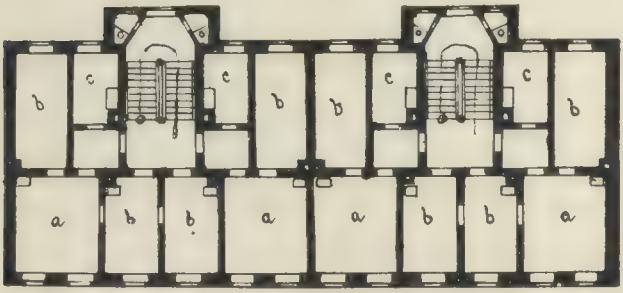
There has been one epidemic of scarlet fever since the buildings were opened for habitation, resulting in thirteen deaths during four weeks.

This undertaking is an individual philanthropic enterprise. The total amount expended up to March, 1893, for lots, buildings, and improvements was 1,261,046.64 marks ($300,129.10). The income and expenditures are so arranged as to secure a net profit of 3 per cent on the capital. Nothing is written off annually for depreciation, as the increase in the value of land which is not yet built upon fully equals this sum. The proprietor originally bought a very large tract of land and sold part of it at a profit, devoting this to the building fund. The houses were built cheaply, as no architect's services had to be paid for and the material was obtained at a low price. The net returns enable Mr. Meyer to build about two new house divisions each year. The loss from empty tenements during the last fiscal year amounted to about 5 per cent of the actual rental value. Rents are paid weekly, and are collected by ladies who render their services gratuitously. Improvement of tenants is the main object of the visitation. Arrearages amounted to about 3 per cent of the rental value during the last fiscal year. Rents are fixed at about 15 per cent less than those asked for fairly similar accommodation in the neighborhood; but even then 14⅓ per cent of the earnings of tenants, it is estimated, goes for payment of rent Duration of tenancy is very stable; people once entering rarely move out. Tenants are not permitted to sublet or to receive boarders. The only special form of application required is a certification that the applicant has a regular means of subsistence.



A.—Houses already built. B.—Lots to be built upon. C. Gardens

Ground plan.



a.—Living room. *b*.—Bedroom. *c*.—Kitchen.

Upper floors.

GOLDNEN HÖHE, LEIPSIC, GERMANY.

PLAN NO. 45.

The occupations and earnings in 1892 of the great majority of heads of tenant families appear in the following table:

OCCUPATIONS AND EARNINGS OF HEADS OF FAMILIES IN MEYER'S MODEL TENEMENT BUILDINGS, LEIPSIC.

Occupation.	Number.	Average annual earnings.	Occupation.	Number.	Average annual earnings.
Basket maker	1		Market women	4	
Bookbinders	2	$185.64	Masons	12	$247.52 to $309.40
Cabinetmakers	31	$247.52 to 297.02	Merchants	3	
Carpenters	12	222.77 to 235.14	Molders	3	198.02
Chimney sweep	1	123.76 to 148.51	Painters	3	272.27
Coachmen	3	198.02 to 210.39	Porters	3	
Cooper	1	222.77 to 247.52	Railway employees	6	142.80
Drapers	2		Saddler	1	247.52
Engraver	1	371.28	Sculptor	1	309.40
Factory employees	23	222.77	Seamstresses	3	49.50
Fire-dep't employees	2	222.77	Shoemakers	2	185.64 to 198.02
Furriers	15	346.53	Stonecutters	2	222.77 to 235.14
Gardener	1	198.02 to 210.39	Tailors	2	185.64 to 198.02
Grocers	2		Tanners	2	210.39 to 222.77
Helpers at market	16	198.02 to 222.77	Tile roofers	5	247.52
Housekeeper	1		Tinners	6	309.40
Instrument makers	7	309.40 to 321.78	Turners	3	247.52
Iron turner	1	247.52	Waiter	1	247.52
Laborers	50	173.26 to 185.64	Warehouse laborer	1	198.02
Ladies' tailors	3	123.76	Weaver, hand	1	
Laundresses	3	148.51 to 160.89	No occupation (widows)	5	
Lithographer	1	247.52			
Locksmiths	6	247.52 to 272.27	Average earnings		231.00
Machinists	2	222.77 to 235.14			

A kindergarten is open from 9 a. m. in winter and 8 a. m. in summer until 6 p. m. Dinner is furnished the children, but their morning and evening meals are provided by the parents. A fee of 20 pfennigs (5 cents) per week is required. If, however, more than one child attends from the same family the eldest pays 20 pfennigs (5 cents) and the younger ones 15 pfennigs (3½ cents) weekly. Eighty children in all are in average attendance. The original cost of installation was 6,000 marks ($1,428).

The philanthropic enterprise of Mr. Meyer is bound to attain even larger proportions than it has yet reached. He has organized a trust which is called the Society for the Construction of Cheap Dwellings in Leipsic-Lindenau. Not only has the sympathy and help of several gentlemen been enlisted, but the cooperation of ladies in the best society of the city, who have volunteered to become rent collectors, has been no small gain to the enterprise. In a recent communication Mr. Meyer mentions as the keynote of his purpose assistance to the poor by helping them to avoid misery and not waiting to assist them after they have been plunged into misery.

GOLDNEN HÖHE, LEIPSIC.

The tenement houses of this name are the property of Mrs. Emma Hasse. The general scheme and typical tenements are shown in the accompanying plan (plan No. 45).

A system of open construction has been adopted, the buildings being placed in blocks of two with a space of 29 feet 6 inches between them and parking about 16 feet 5 inches wide in front along the street. On

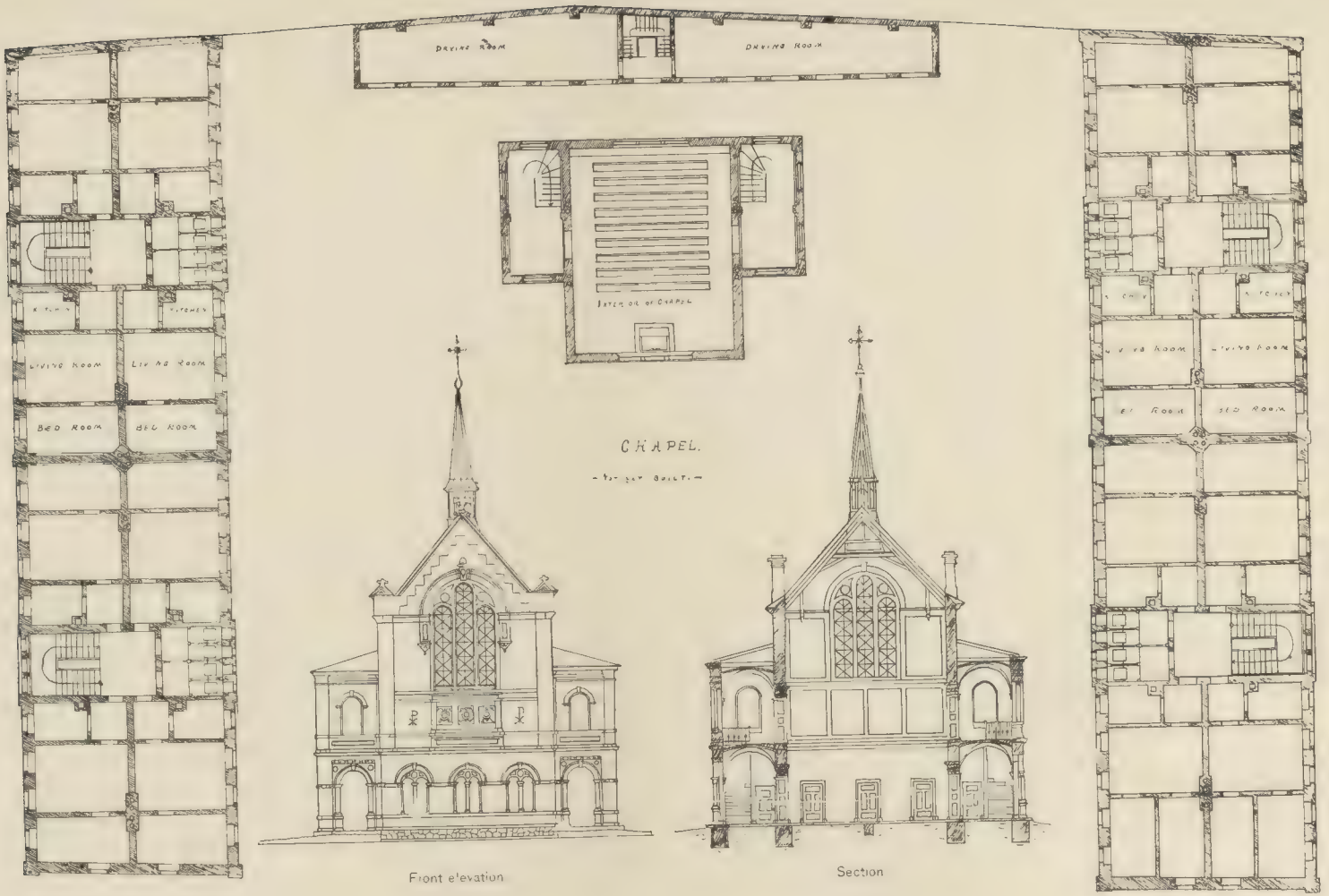
the land at the rear 109 gardens have been laid out, varying in size from 517 to 1,615 square feet. Those placed nearest the houses are rented only to tenants, while the more distant are let to other applicants. Rentals are 5 marks ($1.19) per year for the smallest gardens; 7.50 marks ($1.79) for the medium sized ones, and 15 marks ($3.57) for the largest. In the center of this plot of ground, as shown in the sketch, there is an open area of 43,056 square feet set apart for a children's playground; a part, however, is used for drying clothes. In the former light gymnastic apparatus has been constructed. It is intended at some future time to sell building lots to private individuals on condition that the houses built shall be constructed on the same open system and that no rear houses or workshops shall be built.

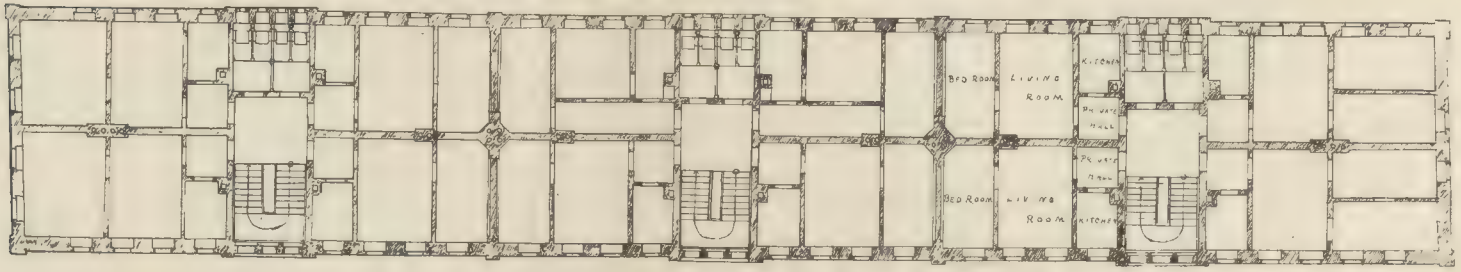
The existing buildings are five stories in height, with cellar. Each double house has two independent staircases, to which every tenement has direct access. The arrangement of the rooms permits the greatest variety in the size of apartments. The normal tenement consists of a living room having two windows, a bedroom and a kitchen with one window each, and a private hallway. There remains then between two tenements of this description a couple of independent rooms, which may be rented singly for lodgers or together as a two-room tenement. Each floor may be divided into one tenement of two rooms and kitchen and one of four rooms with kitchen. Tenements of one, two, three, four, or five rooms each may therefore be had on any floor. At present there are two to three families on a floor and from ten to fifteen to a staircase. Up to 1891 three double houses had been constructed, which were divided into sixty-five tenements.

Rents vary from 96 marks to 220 marks ($22.85 to $52.36) per annum, according to size of tenement. Rents are paid weekly or monthly, at the option of the tenant, but two-thirds of heads of families prefer to pay weekly. Visitation is made by the proprietress and some ladies who are associated with her in an effort to improve the condition of the people. The management of the property is conducted on the general plan of Miss Octavia Hill. Ten laundries and a mangling machine have been provided for the use of tenants. A bathroom has also been opened in an outbuilding. As the property is situated about half a mile from the outskirts of the city a grocery has been opened in one of the buildings, but on condition that intoxicating liquors shall not be sold by the lessee and that credit shall not be given to customers.

SALOMON FUND, LEIPSIC-REUDNITZ.

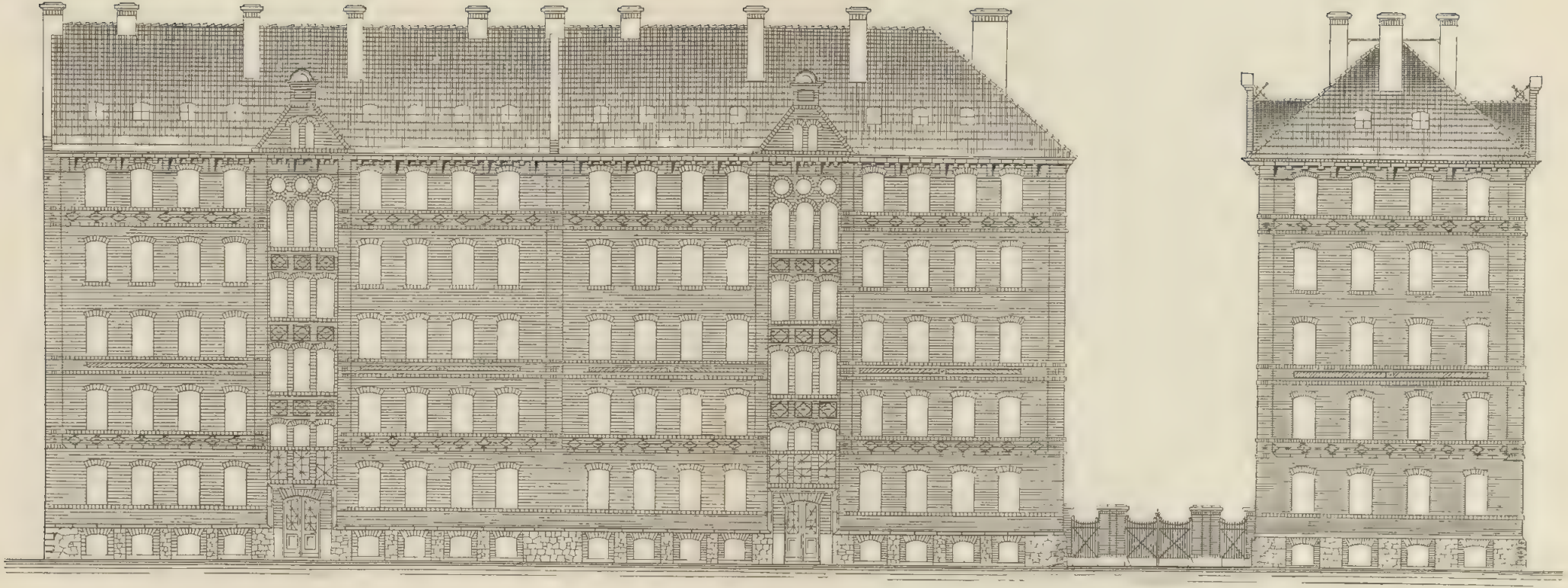
The buildings belonging to this fund (Salomon Stiftung) are upon a lot of 44,777 square feet; 13,695 square feet are built upon, the remainder being open space in the form of a courtyard. The open space is partly paved with gravel and partly utilized as garden. The whole of it is given up to the free use of occupants. The buildings consist of five stories, with a total height of 57 feet 9 inches. They are constructed





SALOMON FUND BUILDINGS, LEIPSIC-REUDNITZ, GERMANY.

PLAN NO. 46 A.



SALOMON FUND BUILDINGS, LEIPSIC-REUDNITZ, GERMANY.

PLAN NO. 46 B.

of brick. The thickness of the walls for the two upper stories is 16 inches, the middle 20 inches, and the lower stories 26 inches. The roofing is of tiles. Staircases are constructed of oak. Fire walls have been placed between every two staircases, and extinguishing apparatus connected with the city water pipes are also provided. Special means of escape in case of fire exist in the attic, where iron doors have been placed in the party walls. There is a cellar paved with brick and used for storage purposes. There is no basement. The stairways are of ordinary construction with a balustered railing and landings. The hallways and staircases are well lighted. Windows take in nearly all of the wall space in the front end of the hall. At the rear end are four water-closets, separated from the rest of the building by a brick wall. The water-closets have each a large window communicating directly with the open air. The main hall containing the front staircase is 10 feet 6 inches in width. Stairs are each 3 feet 11 inches wide. Stair and corridor floors are of wood. Stairways are under the personal supervision of the overseer or janitor.

One door from every family lodging opens directly to the stairway or hallway. There are no special regulations designed to prevent promiscuous mingling of occupants in the corridors and on the landings. It must be remembered that each family has its own private hallway, one door of which opens to the staircase, one to the kitchen, and one to the other rooms. Every room communicates directly, either by doors or windows, with the open air. No special means of ventilation is provided. Each tenement has its own special water-closet which is situated inside the building on a staircase landing. Each closet is separated from the adjoining one by a board partition. Tenants are provided with private keys. The refuse and waste water go through a conduit under the cellar floor to the city sewer. Sewers are disinfected once a week. An unlimited supply of water is permitted. Oil lamps are used for lighting both within the tenements and in the halls. Washing and drying of clothes is not permitted in the different lodgings. Each tenement is provided with an iron range for the kitchen with heating pipes and hot water tanks; living rooms are provided with stoves of earthen tiles with an iron arrangement for cooking, and the bedrooms with iron stoves. The garbage receptacle is a vaulted pit in the yard. Fuel storage exists in the cellar, each tenant having a particular compartment. There are no pantries or clothespresses within the dwellings. Only a few of the tenements on the first floor have inside window shutters; there are none outside. Walls are painted in oil. The general plan of the buildings and their external appearance may be seen from the accompanying sketches (plans Nos. 46 A and 46 B).

The buildings contain 12 one-room, 12 two-room, 68 three-room, and 20 four-room tenements. In the one-room tenements the floor space is 15 feet 9 inches by 8 feet 6 inches; in the two-room tenements the kitchen is 6 feet 7 inches by 11 feet 3 inches, and the bedrooms 11 feet

6 inches by 11 feet 3 inches; in the three-room tenements the kitchen is 6 feet 7 inches by 10 feet 2 inches, the living room 11 feet 6 inches by 16 feet 2 inches, and the bedroom 9 feet 4 inches by 16 feet 2 inches; in the four-room tenements the kitchen is 6 feet 7 inches by 10 feet 2 inches, the living room 11 feet 6 inches by 16 feet 2 inches, and two bedrooms are 12 feet 4 inches by 7 feet 9 inches. The height of the ceiling is 9 feet 10 inches throughout the different stories.

No epidemics have taken place in the buildings since their original occupation. From April 1, 1892, to January 1, 1893, there were ten deaths among children under 5 years of age and thirteen of adults. There were twenty-three births during the same period of time, all of which were legitimate.

These buildings were opened for habitation on April 1, 1891. The original cost of the lot was 124,800 marks ($29,702.40). The cost of the buildings was 420,000 marks ($99,960). The total sum received for rental during the fiscal year when the buildings were visited was 13,500 marks ($3,213). Two-room tenements rent for 2.70 marks (64 cents) per week in the front and 2.60 marks (62 cents) in the rear. Three-room tenements rent for 3.20 marks (76 cents) per week.

These are the only buildings owned by this fund. Resources came from a legacy. The borrowed capital amounts to 60,000 marks ($14,280), and was derived from municipal loan. The annual rate of interest paid on the borrowed capital is 4 per cent. There was no loss of rental resulting from unoccupied lodgings during the last fiscal year for which returns were given. All of the buildings were quite full. Rents are paid weekly in advance and are called for. The tenant is required to give three months' notice of intention to move. Circumstances are taken into account before ejectment takes place in case of arrearage for rent. But 60 marks ($14.28) were lost in the fiscal year from nonpayment of arrearages. These model tenements are inhabited by workingmen pure and simple. The rentals take about 10 per cent of their earnings. Rents for other dwellings of a similar nature are about 50 per cent higher.

When applications for accommodation are made, the circumstances of the applicant are investigated, so that only the poorer working people may be taken. Tenants are neither allowed to sublet nor to receive boarders.

There are about seventy-five families in the buildings. The remaining tenements are inhabited by spinsters.

As yet the only annexes are one bath house and thirteen laundries, but a chapel and crèche are about to be constructed. The cost of the baths was 1,400 marks ($333.20). Tenants are charged 10 pfennigs (2½ cents) each time they use them. The bath house contains three bathrooms. Hot and cold water and shower baths are provided. It is open only on Saturdays.

The laundries have enameled iron tubs and the floors are of asphalt. Tenants are required to make arrangements with the janitor as to the days for which they wish the laundries reserved. A drying room has been placed over the laundries in an outhouse, and a charge of 10 pfennigs (2½ cents) per day is made for its use. There is a mangling machine in the same building for the use of which a fee of 5 pfennigs (1¼ cents) per hour is charged.

The income from the legacy of Frau Hedwig von Holstein, as soon as it reaches a sufficient sum, will be used to perpetuate the work of the trust in the erection of a new building.

COOPERATIVE BUILDING ASSOCIATION, DRESDEN.

The most modern buildings of this company (Gemeinnütziger Bauverein) are in Friedrichstrasse, Nos. 55, 57, and 59. The frontage of the lot is about 160 feet 9 inches and the depth about 206 feet 8 inches. The total area is 33,476 square feet, 10,015 square feet, about 30 per cent, of which is built upon. The open space is found in the rear, and includes small courts between the front and rear wings of the buildings. Almost all of it is unpaved. It is given to the free use of occupants for walks and gardens.

The buildings are of stone and comprise five stories, and the total height is 62 feet 4 inches. The thickness of the exterior walls is 33 inches at the base and 16 inches at the roof. The roofing is composed of tiles, and the staircases are constructed of stone. Aside from this the only other protection from fire are two connections for hose in each house division of the buildings.

Cellars are found only under the front half of the buildings, except in the cases of laundries. They are paved with bricks and are used by tenants for storage of coal and provisions. There is no basement.

The staircases, corridors, and privies are in narrow sections connecting the front and rear parts of the buildings. The middle one of the connecting structures is 25 feet wide, and the two at the ends are 20 feet wide. The front and rear parts of the buildings thus connected are about 25 feet apart. This arrangement allows for well lighted and well ventilated staircases, corridors, and privies, and removes the latter as effectually as if they were in an extension at the rear. The privies in the buildings are midway between the two parts and opposite the staircases, being separated from the latter by a corridor 10 feet 4 inches wide in the central building and 6 feet 6 inches wide in each of the side buildings, and running from the front to the rear parts in each case. On the ground floor the corridors extend through the front and rear parts, from the street to the rear yard. The staircases are each 4½ feet wide, and each of the privies occupies a space 4½ feet by 5½ feet, there being four on each landing. They are reached by means of two small anterooms adjoining the main corridors on each floor, and are

in no way in direct connection with the dwellings, the dwellings on each floor opening by means of private corridors to the main central hall.

The halls have tiled and cemented floors, and the walls are wainscoted about 3½ feet high; above that they are painted in oil. One door of each tenement opens on the main corridor, but two rooms communicate with the private hallway. There is no mingling of occupants whatever in the hallways, and regulations against it would be superfluous. The private hallways, shut off by doors from the main corridor, have a tendency to isolate individual families. Every room communicates directly, either by doors or windows, with the open air, and each tenement has free circulation from front to rear. There are lodgings for four families on each floor. Each one is provided with a privy outside, and conveniently located in the manner just described. Six persons, on the average, use a privy. A dicharge pipe in each privy runs to a pit at the bottom. The seats are covered with lids. Tenants are required to wash and scrub the bowls under the seats. Each house has a sink in its private hallway connected by a trap with the sewer. Water is piped into the buildings, and the supply is unlimited. Heating is done by stoves. Oil lamps furnish lighting for tenants, and gas is provided in the hallways. Laundry work is not permitted in the different tenements. Washing is done in special rooms set apart in the cellar, and drying is done in the yard or attic. The accompanying plans show the front elevation of the buildings and the general disposition of the tenements (plans Nos. 47 A, 47 B, and 47 C).

The private hallways are nearly as large as the kitchen, and in many cases the tenants use them as such, the flues being in a position to permit it, and devote the kitchen space to other purposes. A cooking range has been provided in each tenement. Fuel storage for every tenement exists in the cellar, and a garbage receptacle for each is placed in the yard. There are no pantries or clothespresses. All the larger rooms have china stoves for heating, which have appliances for cooking whenever that is necessary. Lattice shutters are provided on the first floor. All windows have double sashes. There are no balconies, but windows on the ground floor have iron gratings. The walls and ceilings are painted in plain colors.

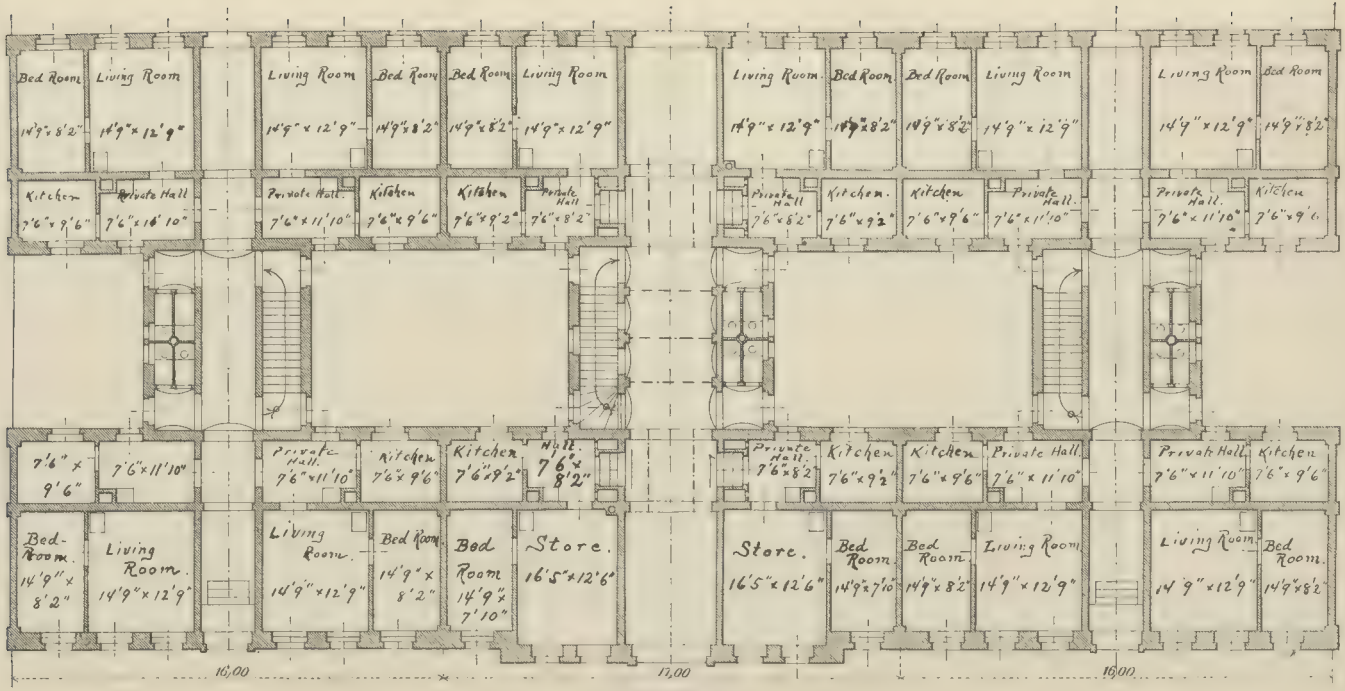
The ceilings are 9 feet 6 inches, 9 feet 10 inches, and 10 feet 6 inches in height. The private hallways and kitchens in three-room tenements are each about 7 feet 6 inches by 11 feet 6 inches, the living rooms 14 feet 6 inches by 12 feet 6 inches, and the bedrooms 14 feet 6 inches by 7 feet 10 inches. In four-room tenements the kitchen is usually smaller, and the living room and bedrooms are about the same size as in the three-room tenements. The existence of a small private hallway permits an arrangement which is frequently made, namely, separating the tenement into one of three rooms and a hallway and another of one room and a private hallway. Forty-six hundred cubic feet represent the



Front elevation.

BLOCK BUILDING OF THE COOPERATIVE BUILDING ASSOCIATION, DRESDEN, GERMANY.

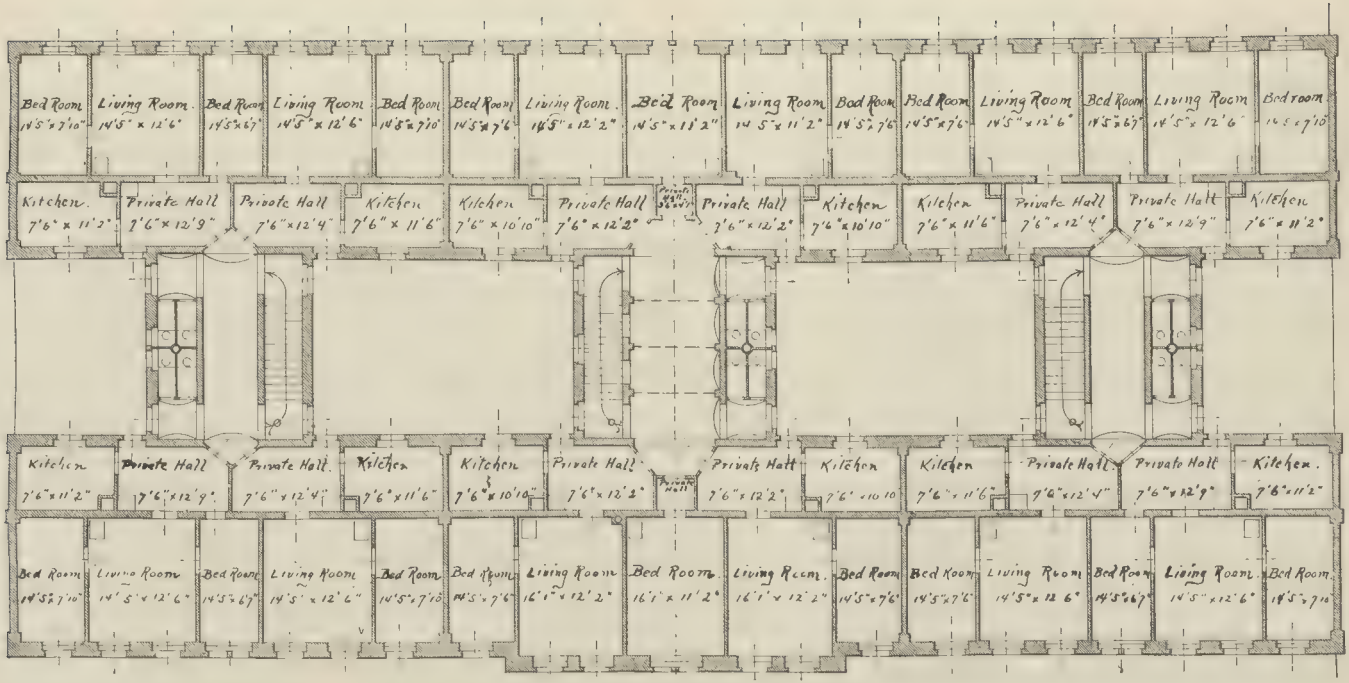
PLAN NO. 47 A.



Ground floor

BLOCK BUILDING OF THE COOPERATIVE BUILDING ASSOCIATION, DRESDEN, GERMANY.

PLAN NO. 47 B.



Upper floors.

BLOCK BUILDING OF THE COOPERATIVE BUILDING ASSOCIATION, DRESDEN, GERMANY.

PLAN NO. 47 C.

average air space in three-room tenements, and from 5,390 to 7,037 cubic feet that in four-room tenements. The average air space per occupant in one of the large tenement buildings was 786 cubic feet during the year 1891.

The rentals of three-room tenements are 200 marks ($47.60) per annum on the ground floor, 220 marks ($52.36) on the second floor, 212 marks ($50.46) on the third floor, 200 marks ($47.60) on the fourth floor, and 160 marks ($38.08) on the fifth floor. Four-room tenements rent for from 272 to 316 marks ($64.74 to $75.21) on the second floor, 260 to 302 marks ($61.88 to $71.88) on the third floor, 248 to 288 marks ($59.02 to $68.54) on the fourth floor, and 200 to 230 marks ($47.50 to $54.74) on the fifth floor.

There have been no epidemics in the buildings since they were constructed, and the death rate is exceptionally low. There have been no illegitimate births.

The first buildings constructed by this company were opened for habitation October 1, 1888. The original cost was 40,787.92 marks ($9,707.52) for land and 185,188.76 marks ($44,074.92) for buildings.

When visited there were two groups of buildings, containing 68 three-room tenements, 48 four-room tenements, and 4 stores. During 1892 a third group was completed.

The enterprise is conducted by a cooperative building association, with a share capital of 600,000 marks ($142,800). An annual dividend of 4 per cent has been paid from the commencement. The by-laws forbid the distribution of profits above 4½ per cent. A reserve of 17,203.40 marks ($4,094.41) had been set aside up to the end of the last fiscal year for which returns were available. It is intended to allow this sum to accumulate from year to year until the amount is sufficiently large to undertake the construction of new model tenements.

The total amount borrowed on mortgages is 70,000 marks ($16,660). Interest at the rate of 3¾ per cent is paid on 40,000 marks ($9,520), the amount first borrowed. No statement is made in the reports of the association regarding the interest paid on the remaining 30,000 marks ($7,140), which was borrowed later.

The taxes, as reported in 1892, were as follows:

State rent and income tax	$69.50
State land tax	55.70
School tax	128.77
City land tax	126.83
Communal income tax	23.99

The total sum received for rental during the last fiscal year for which reports have been received was 42,682 marks ($10,158.32). The total estimated value of lands and buildings is 687,909.17 marks ($163,722.38). There were no unoccupied lodgings during the year. Rents are paid quarterly. The basis upon which rents are calculated is about 10 cents per square foot of space, including walls and partitions, per year,

on the ground and fourth floors; for the second floor 10 per cent more is added; for the third floor 5 per cent more is added. A deduction of 15 per cent is made from this for the fifth floor.

The rentals are called for, and must all be paid in advance. Six months' notice is required from tenants intending to leave. A tenant may remain in arrears of rent seventeen days before being ejected. There were no arrearages of rent during the last fiscal year. No change in the price of rent has taken place since the enterprise began, and accommodation can be had about 25 per cent lower in these buildings than in fairly similar ones in the neighborhood. It is calculated that the average earnings of heads of families are about 1,000 marks ($238) a year, and 20 per cent of this represents, in round numbers, the rent charged.

The average duration of tenancy has been long; as a rule, occupiers are loath to leave. They are allowed to sublet to single persons, but overcrowding is guarded against. Only such rooms as have separate entrances may be sublet. Boarders may be taken. There is no regular form of application from a would-be tenant. As long as the demand for rooms exceeds the supply, as is now the case, only stockholders will be admitted as tenants, selection being made by lot.

The regulations are as follows:

Fire and light.—Inflammable substances can not be kept in the house. The attics can not be entered at night except in case of extreme necessity, and then only with a closed lantern.

Ashes and sweepings must be emptied in the pit provided therefor, and the pit must be immediately closed. Straw and other easily inflammable matter can not be emptied there.

Water.—Carelessness in handling the hydrant and the wasting of water is punishable by a fine of from 30 to 100 marks ($7.14 to $23.80), regardless of the fine that may be imposed by the government authorities. During cold weather windows near water pipes must not be left open.

Halls, etc.—Halls and stairways must be swept daily before 9 a. m. and scrubbed every Saturday. Tenants must take weekly turns in doing this, or they may agree to employ some one to do so.

Court.—The cleaning or beating of clothes, covers, carpets, furniture, etc., can only be done in the court from 7 to 10 a. m. and from 7 to 9 p. m. Articles can not be shaken or thrown out of windows. Obstructions can not be placed in the court, hallways, or other common passages.

Domestic animals.—Without special permission of the owner no domestic animals can be kept on the premises. If kept by permission and they prove objectionable they must be removed.

Front door.—The building is opened at 5 a. m. in summer and at 6 a. m. in winter, and closed at 10 p. m. Persons entering between 10 and 12 p. m. may be required by the janitor to pay 10 pfennigs (2⅓ cents), and if entering after midnight 20 pfennigs (4¾ cents).

Noises.—Excessive noises are forbidden, and after 10 p. m. all noisy occupations must cease. Before 7 a. m. and after 10 p. m. neither music nor singing is allowed. Slamming of doors, noises of children, as well as quarrels of all kinds in the building or the court must be avoided.

Unnecessary standing around in the doorways, halls, and stairways is prohibited.

Persons carrying on any trade can only hang out signs when authorized by the proprietor, and the latter determines the size and the place where the sign is to be exposed.

A tenant is selected as janitor, which position is considered one of special honor. He receives only 20 marks ($4.76) a year for his services. His duties are to keep order and to attend to lighting. The former task is not a very difficult one, however, as the tenants, being themselves part owners of the property, maintain the best of order.

Every house has a laundry in the cellar, each tenant having the use of it one day per month. The janitor receives 10 pfennigs (2⅓ cents) from each tenant using the laundry as a fee for keeping it in order. Strict regulations exist regarding the care of utensils, and also prescribing the day when each tenant may use the laundry.

Laundries are equipped with an oven and an enameled iron kettle and wash tub. The floors are paved with cement.

There is a mangling house containing a mangling machine, shelves, etc., for the use of all tenants.

There is also an outhouse for the use of persons taking washing by the day or for those desiring to wash their articles more frequently than once in every twenty-eight days. An extra fee is charged for the use of this accessory.

SAINT JOHN'S SOCIETY, DRESDEN.

The model tenements belonging to the Saint John's Society (*Johannes-Verein*) are located at 27 to 31 Sebnitzerstrasse. The frontage of the lot upon which they are constructed is 143 feet 8 inches and the depth 203 feet 9 inches. The total area of the lot is 35,952 square feet. Between the front and rear buildings which have been erected on the lot there is an open space, which is paved with stones. A portion of it is set aside for playgrounds and the rest for drying clothes.

The buildings are of five stories, and are 62 feet 4 inches high. They are constructed of brick. The thickness of the exterior walls is 19½ inches for the first and second stories and 15¾ inches for the three upper stories. The roofing is of tile and the staircases of stone. The buildings have a cellar, which is partitioned off into cells for storage purposes. A certain space is reserved for the laundries and another for baby carriages.

Each front building is composed of a front and a rear part, connected by a neck which contains the staircase, privies, and corridors. This leaves a small court of about 23 feet square surrounded by the staircase structures and the front and rear parts of the buildings. Two windows are situated in each side of the connecting structure and on every floor, whereby light and ventilation are furnished to the staircases, etc. Four tenements are entered from the landing on the first floor, two being in the front and two in the rear part, and six tenements on

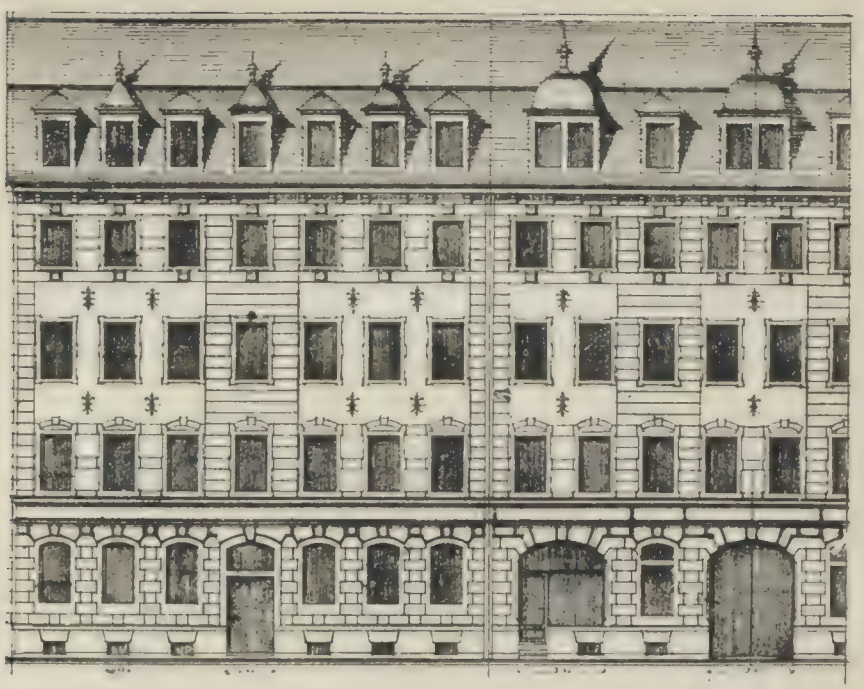
each landing of the upper floors, three in the front and three in the rear part. The corridors in the connecting structures are common to all tenants, but adjoining these each tenement has a small private corridor or hallway.

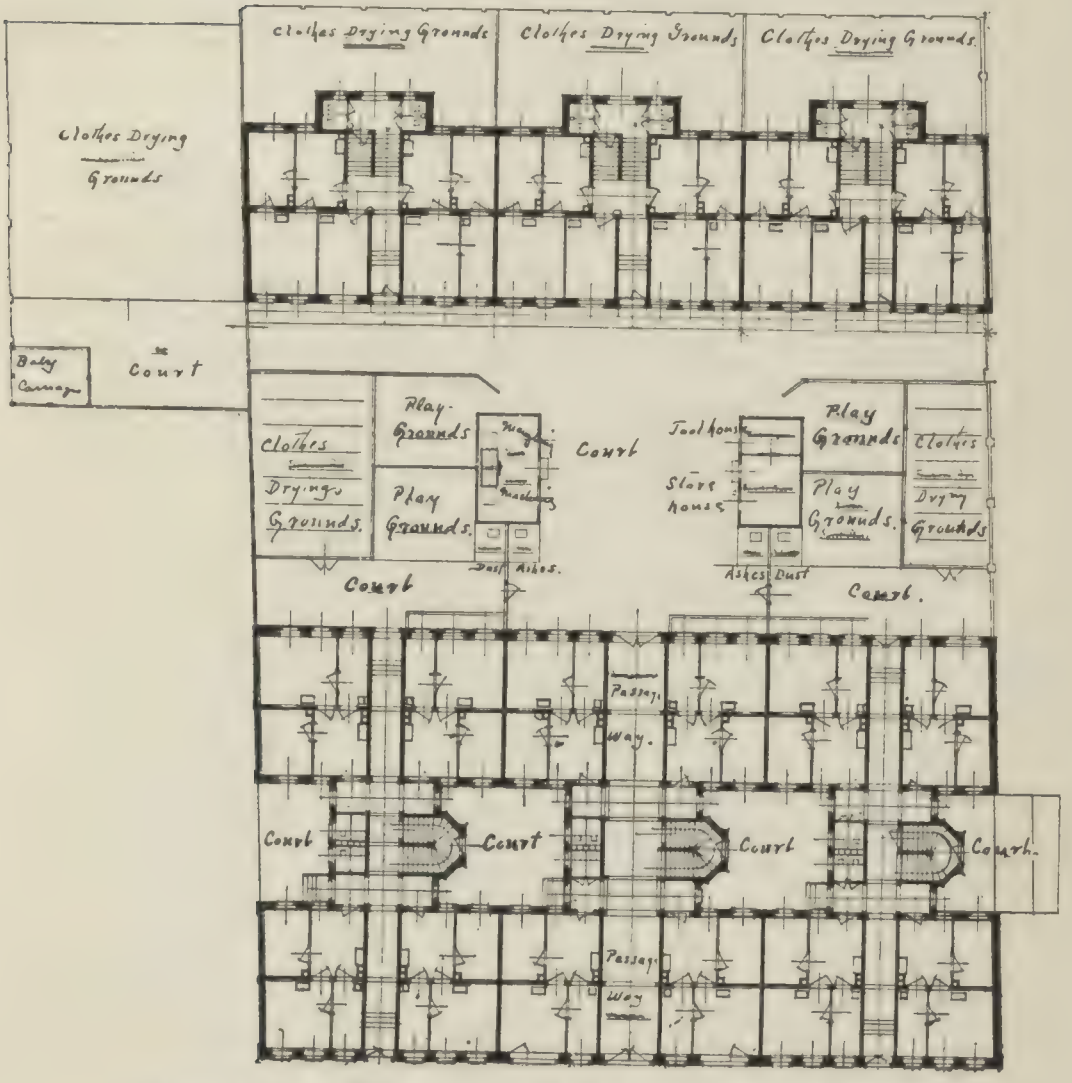
The rear buildings are constructed on a different plan, the corridor and staircase being in the center of the rear half of each building and the privies in a rear extension, and reached from the corridors. Three tenements are entered from the landing on each floor. Windows in the rear give light and ventilation to the stairways.

The accompanying sketch shows the front elevation and ground floor arrangement of the buildings (plan No. 48).

The tenements are not self-contained. The privies are located as already described, and six families use four of them. The privies discharge into a pit which is underground and thoroughly waterproof, being lined with cement. The privies are frequently disinfected and the pit is emptied every six months. Privies are ventilated by windows communicating with the open air and by the discharge pipe, which is open above the roof. Waste water runs into the city sewers. A sink with an enameled basin and properly trapped is found in each kitchen in the front buildings and on the staircase landings in the rear buildings. An unlimited supply of water is allowed. Halls and corridors are not heated. Within the tenements the tenants use silver-gray tile stoves. There is gas on the staircases but none within the tenements, in the latter oil lamps being used for lighting purposes. Every room opens directly, either by door or windows, to the external air, except two small rooms in the smallest tenements on each floor of the front buildings, these opening on the main corridors. Washing is only allowed to be done in the laundries, and clothes drying in the attic or a portion of the court. There is a mangling machine for the use of tenants. A cooking range of silver-gray tiles with boiler and heating pipes is placed in each kitchen. Fuel storage is in the cellar. There is a garbage receptacle in the yard. Pantries and clothespresses have not been provided. There are no window shutters, but double windows are found throughout. Each tenant has his own doorbell. Interior decorations are meager. There are no baths or social annexes.

In the front buildings two-room tenements contain kitchens which are 12 feet 9 inches by 6 feet 7 inches, and bedrooms 13 feet 7 inches by 12 feet 6 inches; three-room tenements contain kitchens which are 12 feet 9 inches by 10 feet 2 inches, living rooms 12 feet 9 inches by 8 feet 2 inches, and bedrooms 13 feet 7 inches by 12 feet 10 inches; four-room tenements contain kitchens and living rooms which are generally the same as in the previous class, while the bedrooms average a little smaller. The ceilings are 11 feet 6 inches in height on the first floor, 9 feet 10 inches on the second and third, and 8 feet 10 inches on the fourth and fifth.





BLOCK BUILDING OF THE SAINT JOHN'S SOCIETY, DRESDEN, GERMANY.

PLAN NO. 48.

There are a few one-room tenements in the rear buildings, and these rent for from 1.10 marks to 1.60 marks (26 cents to 38 cents) per week, according to the story in which the room is situated. Two-room tenements are not found in the first story of the buildings; in the second and third stories they rent for from 1.85 marks to 2.35 marks (44 cents to 56 cents) per week, in the fourth story for from 1.60 marks to 1.85 marks (38 cents to 44 cents), and in the fifth story for from 1.35 marks to 1.60 marks (32 cents to 38 cents). Three-room tenements in the first story rent for 3.95 marks (94 cents) per week, in the second story for from 3.20 marks to 4.20 marks (76 cents to $1), in the third story for from 3.20 marks to 3.95 marks (76 cents to 94 cents), in the fourth story for from 2.95 marks to 3.70 marks (70 cents to 88 cents), and in the fifth story for from 2.45 marks to 3.20 marks (58 cents to 76 cents). Four-room tenements in the first story rent for from 4 marks to 4.75 marks (95 cents to $1.13) per week, in the second story for from 4.25 marks to 5 marks ($1.01 to $1.19), in the third story for from 4 marks to 4.75 marks (95 cents to $1.13), in the fourth story for from 3.50 marks to 4.25 marks (83 cents to $1.01), and in the fifth story for from 3 marks to 3.75 marks (71 cents to 89 cents). These prices include water service and hall lighting. The total sum received for rent, as stated in a report issued in 1892, exclusive of the water service and hall lighting, was 22,000 marks ($5,236).

During the last fiscal year giving returns but five persons died; three of them were children under 5 years of age. There were twelve births during the same period, all of which were legitimate.

These buildings were opened for habitation in April, 1890. The actual cost of the land was 44,200 marks ($10,519.60), and of the buildings 345,800 marks ($82,300.40). The buildings were erected by the Saint John's Society as a part of its philanthropic work. The money needed for payment of land and construction was all loaned to the society by individual members, who took as security mortgages upon the property. There is, therefore, no share capital; and of the income 3½ per cent is paid as interest to these creditors. The balance goes for maintenance, taxes, and various other expenses, and whatever is left over after meeting these demands goes to the sinking and renewal funds. From 1 to 2 per cent has been written off the value of the buildings each year since the enterprise began. Rents are paid weekly, and the collecting is done through lady agents. Arrearages of rent have so far been unknown, and only one ejectment has taken place during two and one-half years. Since the opening of the buildings a slight reduction in the rent charge has been made in the case of twenty-four tenements, namely, 25 pfennigs (6 cents) per week. Rents in these model tenements are from 25 to 30 per cent lower than for fairly similar accommodation in the neighborhood.

The occupations and average weekly earnings of 103 heads of tenant families in the model tenement buildings belonging to the Saint John's Society of Dresden are as follows:

OCCUPATIONS AND WEEKLY EARNINGS OF HEADS OF TENANT FAMILIES IN THE TENEMENTS OF THE SAINT JOHN'S SOCIETY, DRESDEN.

Occupation.	Number.	Average weekly earnings.	Occupation.	Number.	Average weekly earnings.
Artisan's helpers	2	$4.76	Locksmiths	4	$5.95
Bookbinders	2	3.93	Masons	2	5.95
Borer	1	4.28	Master comb maker	1	5.71
Brakeman	1	3.33	Merchant	1	
Brush maker	1	3.57	Messengers	2	3.57
Cabinetmaker	1	5.24	Post-office employee	1	4.58
Cigar maker	1	4.28	Potter	1	9.52
Coachmen	2	4.76	Retired man	1	4.58
Conductors	2	4.58	Seamstresses	4	1.19
Government employee	1	4.58	Shoemakers	3	3.57
Knitter	1	.52½	Tinner	1	5.95
Laborers	20	4.28	Tool-maker's helper	1	5.95
Letter carriers	4	4.58	Various occupations (widows)	42	1.74

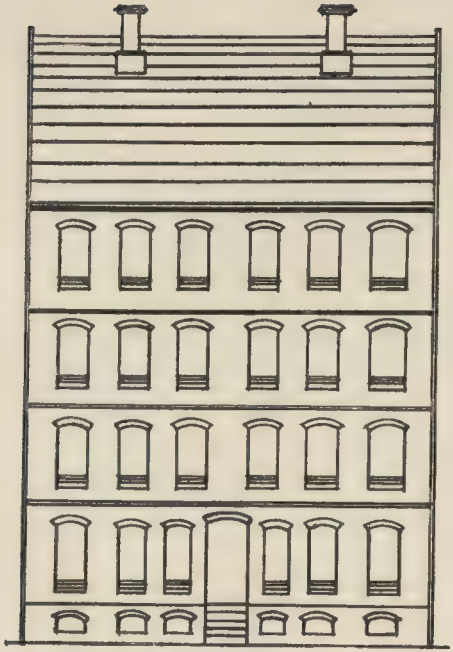
About 19 per cent of the earnings of these people, it is calculated, go for rent. Tenants are not permitted to sublet, nor may they receive boarders. There are no special regulations. Tenants are expected to keep clean and orderly. The janitor is an old soldier who is given free rent and paid 500 marks ($119) for his services. Two-thirds of the heads of families living in these buildings are located within one-half a mile from their places of work, one-sixth of them from one-half a mile to one mile, and the other sixth from 1 to 2 miles.

SAVINGS AND BUILDING SOCIETY, HANOVER.

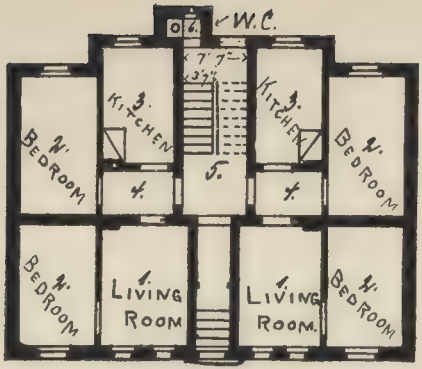
The model tenement building of this company selected for description is located in Listerstrasse. The lot has a frontage of 46 feet 11 inches, and contains 2,463 square feet of area. Of this, 1,615 square feet, or 65 per cent, have been built upon. The open space is in the rear and is paved. It is given up to the free use of occupants, and is utilized as a playground for children.

The building is of brick and has four stories. The floors rest on wooden beams. The thickness of the exterior walls is 20 inches at the ground floor and 15 inches at the upper story. The roof is constructed of tiles. Staircases are of oak supported on iron beams. Chimneys are lined with fire bricks. There are no special means of escape provided in case of fire. There is a cellar to the building, which is paved with bricks and utilized for storage of coal and provisions. The staircase is in the middle of the house and is reached by a hallway leading from the front door. This hallway is about 4 feet wide by 14 feet long. The staircase corridor is about 8 feet wide and 16 feet long. The steps are 3 feet 7 inches wide, and have halfway landings. From these latter the privies are reached directly, as they are in an extension at the rear. Staircases are under the supervision of the janitor. Not more than one door in a family lodging opens directly upon the stairway or hallway.

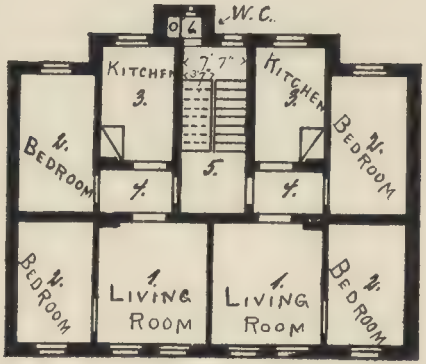
There are no special regulations with a view of preventing the



Front elevation.



Ground floor.



Upper floors.

BLOCK BUILDING OF THE SAVINGS AND BUILDING SOCIETY, HANOVER, GERMANY.

PLAN NO. 49.

promiscuous mingling of occupants in hallways or corridors. The only provision for preserving independence and isolation of the individual family is the private hallway which joins the staircase corridor, and is within the tenement. Every room communicates directly, either by doors or windows, with the open air. All rooms but one of each tenement have through ventilation. There are transoms over the doors. Each room has an opening at the back for ventilation. Privies are provided in the ratio of one to every two families. The refuse falls through a shaft to a pit below. There is no water in the privies. They are ventilated by windows and a special shaft. Water has been provided in each kitchen, and the supply is unlimited. Sewers are not yet made. All sinks have traps. Heating is done with stoves and lighting with oil lamps. Washing is done in the cellar and drying in the attic. A cooking range has been placed in every kitchen. Each tenant has his own receptacle for garbage. The city service removes the garbage periodically. In lieu of a pantry a plate shelf has been placed in each kitchen. All living rooms are furnished with ornamental iron stoves. The walls are papered and the ceilings are painted in oil. The exterior of the building is very plain. The front elevation and floor plans are given (plan No. 49).

The particular model building which is being described contains 8 four-room tenements. The private hallway is 4 feet 9 inches by 8 feet 6 inches, the kitchen is 8 feet 6 inches by 11 feet 10 inches, the living room 12 feet 6 inches by 13 feet 9 inches, and the two bedrooms 9 feet 6 inches by 14 feet 9 inches, respectively. The ceilings are 10 feet 2 inches high. These are the average dimensions. Slight variations occur, but they are not sufficient to vitiate the figures.

The original cost of the lot upon which this building stands was 3,100 marks ($737.80); the building itself cost 21,280 marks ($5,064.64). The yearly rental of four-room tenements is 180 marks ($42.84) in the first and fourth stories, 200 marks ($47.60) in the second story, and 190 marks ($45.22) in the third story. The building was opened for habitation October 1, 1886.

No epidemics have taken place since the society's buildings were opened for habitation. Seven deaths of children under 5 years of age have taken place in four years, and ten among occupants of all ages. There have been no illegitimate births in the six years counting from the opening period. Neither have there been any criminal convictions among tenants.

The total number of buildings now owned by this society is sixteen. They contain 11 three-room tenements, each renting at from 120 to 155 marks ($28.56 to $36.89) annually; 115 four-room tenements, each renting at from 160 to 210 marks ($38.08 to $49.98) annually, and 1 five-room tenement, renting at 255 marks ($60.69) annually. Besides these there are five tenements with stores.

The total amount of the present share capital is 486,000 marks ($115,668); 266,873.74 marks ($63,515.95) had been paid in at the time

the last fiscal reports were available, 1891. The company is a cooperative society with limited liability. Shares have a value of 300 marks ($71.40), and are payable in weekly installments of 30 pfennigs (7 cents). The rate of annual dividend paid upon share capital since the society was founded has been 4 per cent on membership contributions actually made. There is a reserve of 2,765.90 marks ($658.28) and a contingent fund of 4,778.65 marks ($1,137.32). The reserve and dividend counted together indicate net profits of 4½ per cent annually from the beginning.

The borrowed capital is as follows:

Amount deposited by members as savings	$21,169.08
Loans from members	3,853.43
Loan on land	23,800.00
Loan on mortgages	44,601.20

State, city, water, and sewer taxes amount to 1,035.03 marks ($246.34) annually, or about 2 marks (48 cents) per room. The total estimated value of lands and buildings is about 495,000 marks ($117,810), or about 25 per cent more than actual cost.

The total sum received from rent during the fiscal year 1891 was 21,216.25 marks ($5,049.47). Only shareholders can be admitted as tenants, and as there are about five times as many applicants as there are places, there can be no loss of rental from unoccupied lodgings. The buildings are always full, and tenants are selected by lot and from among shareholders. Rents are paid at the office when due, and not in advance. Three months' notice must be given by a tenant of intention to leave. Arrearages are not allowed. Rentals have remained as originally fixed. Similar accommodations in the neighborhood rent for about one-third more than the model tenements.

A census of occupations and earnings of heads of families in the Listerstrasse houses gives the following results:

OCCUPATIONS AND DAILY EARNINGS OF HEADS OF FAMILIES IN TENEMENTS OF THE SAVINGS AND BUILDING SOCIETY, HANOVER.

Occupation.	Number.	Average daily earnings.	Occupation.	Number.	Average daily earnings.
Bartender	1		Metal workers	3	$0.71
Blacksmiths	5	$0.71	Porters	2	.48
Cabinetmaker	1	.71	Printer	1	.71
Carpenter	1	.71	Seamstress	1	.36
Civil service employee	1	*a*285.60	Shoemakers	2	
Civil service employee	1	*a*357.00	Switchmen	2	.57
Factory operatives	2	.57	Tailors	3	.71
Laborers	9	.57	Tinner	1	.71
Locksmiths	4		Turner	1	.71
Masons	5	.71	Weavers	4	
Messengers	2		Not specified	3	

a Per year.

From 20 to 25 per cent of earnings of heads of families goes for rent. Tenants may sublet and receive boarders with special permission from the corporation. No special form of application is required, as all shareholders are eligible to tenancy. Porters and janitors are selected from

among the tenants, and those best fitted are chosen. Their duties are to manage the buildings, keep order, and report to the board any repairs that are to be made. A committee of five members has general control and supervision.

Nearly all the tenants live within twenty minutes' walk of their work. There are no social annexes, such as libraries, reading rooms, and halls. Laundries, baths, or bread ovens have not been provided.

LOEST'S COURT, HALLE ON THE SAALE.

The property known as Loest's Court (*Loest's Hof*) is situated in Schmiedstrasse, Halle on the Saale. The group of buildings is composed of several connected blocks. The frontage of each lot on which a single building is located is 52 feet 6 inches and the depth 59 feet 1 inch. A building occupies the whole frontage and runs to a depth of 33 feet 7 inches. Of the total area of a lot 2,077 square feet are occupied by dwellings, coal sheds, etc., and a free open space embraces 1,023 square feet.

The open space is in the form of a yard in the rear. In addition to this each tenant has 775 square feet of garden space allotted him across the street. The yard in the rear is used by the tenants of each building in common as a passage to coal sheds and rear entrances. The garden space may be used for recreation, growing vegetables, or for keeping chickens, goats, and other domestic animals, according as each tenant sees fit to utilize his allotment.

The building is of brick, with tile trimmings, and consists of four stories and basement cellar. The total height is 59 feet 8 inches. The exterior walls are 25 inches thick at the foundation and 15 inches from the ground floor up. Every precaution possible has been taken to make the building fireproof. Flues are lined with tiles, and the staircases are granite, with iron railings. The roof is covered with tiles, and the cellar is paved with Flemish bricks. The cellar is used almost exclusively for storage purposes.

There are three families on each floor using the same staircase. There are two entrances to the hallways—one from the street and one from the court. Only one door opens directly from the lodgings to the hallway. Connection is made by private corridor with the kitchen and the two other rooms of the tenement. The tenements are not self-contained, though all reasonable dispositions have been made for securing independence and isolation to the individual family. Every room communicates directly with the open air. All bedrooms have ventilators, and four rooms on each floor have through ventilation. Privies exist in the ratio of one to every three families. They are situated on each floor in an extension at the rear which is reached from the corridor, but well separated from the rest of the building.

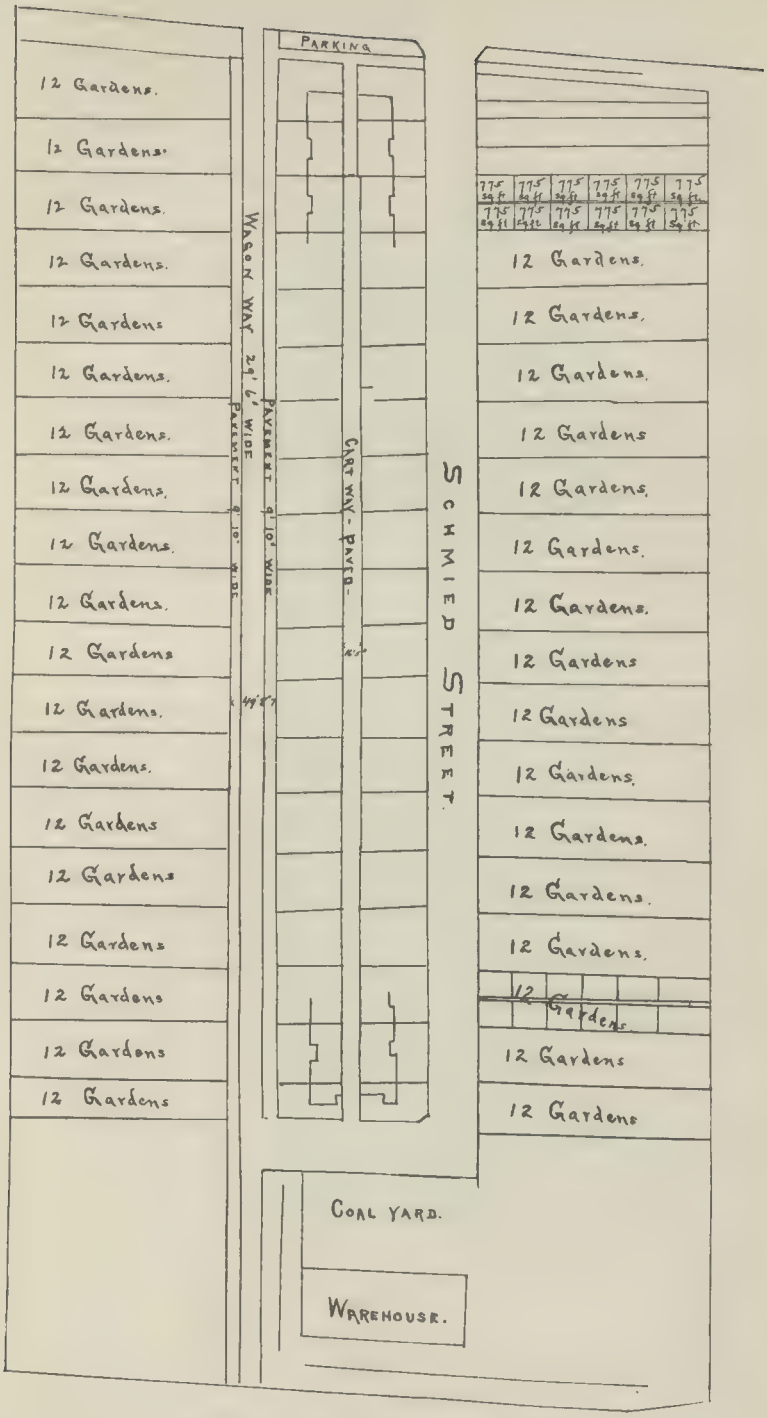
Very satisfactory arrangements have been made for privy discharge pipes and underground pits. The pits are lined with 12-inch water-

tight concrete and vaulted with masonry, and are situated 12 inches away from the main building wall. The opening to each has a double tight-fitting cast-iron lid, and ventilation takes place through the discharge pipe, which extends about 3 feet above the roof. Beside this there is a ventilating shaft, 5 inches in diameter, extending from the top of the pit and alongside the kitchen flue to the top of the house. Each privy has a tight-fitting lid. The connection and discharge pipes are both air and water tight. The pit is emptied every three months by means of a hose and air pressure apparatus, and the refuse is conveyed to neighboring farms for fertilizing. The waste water from the kitchens and laundry is conveyed to a sink in the yard, and from there, by means of a conduit under the building, to the main street sewer.

The allowance of water per day to an individual is 25 liters (26 quarts). On the first and third floors of the buildings oil lamps are placed in the hallways. Coal and brickettes are used for fuel. The hallways and staircases are not heated.

A range has been placed in each kitchen. Fuel storage has been provided in a brick building erected in every back yard. In each back yard there are also two walled-in receptacles with iron covers, one for ashes and the other for garbage. These receptacles have openings in the rear to the alley from which their contents may be removed. Each tenant has a pantry within his dwelling. Every living room has a stove with an iron bottom and earthen tile top. The accompanying sketches show the general disposition of the property, external appearance of the buildings with the garden space in front, and the floor plans (plans Nos. 50 A, 50 B, and 50 C).

The height of ceilings is 9 feet 2 inches, 9 feet 10 inches, and 10 feet 4 inches in the different stories. In three-room tenements kitchens are 9 feet 8 inches by 6 feet 11 inches and 10 feet 2 inches by 8 feet 6 inches; bedrooms are 13 feet 11 inches by 11 feet 2 inches and 14 feet 4 inches by 9 feet 10 inches; living rooms are 13 feet 11 inches by 11 feet 2 inches and 14 feet 10 inches by 11 feet 6 inches. The cubic air space of three-room tenements, excluding the corridor, ranges from 3,500 to 4,000 feet. Two four-room tenements are found in each block. In each of these the kitchen is 8 feet 6 inches by 8 feet 2 inches, the living room 14 feet 5 inches by 11 feet 6 inches, and two bedrooms 13 feet 11 inches by 9 feet 10 inches and 13 feet 6 inches by 11 feet 2 inches, respectively. There also exists a three-room tenement in the basement of each block, which is occupied by the person in charge and his family. The floor space bears a fair proportion to that of similar tenements in the higher stories, the chief difference being that the ceilings are but 7 feet 5 inches high. On an average there are twelve tenements in each block—ten three-room and two four-room. There are a few five-room tenements. In the entire group of these blocks there are 482 tenements, 384 of which contain three rooms. Four additional blocks are in course of construction.



LOEST'S COURT, HALLE ON THE SAALE, GERMANY.

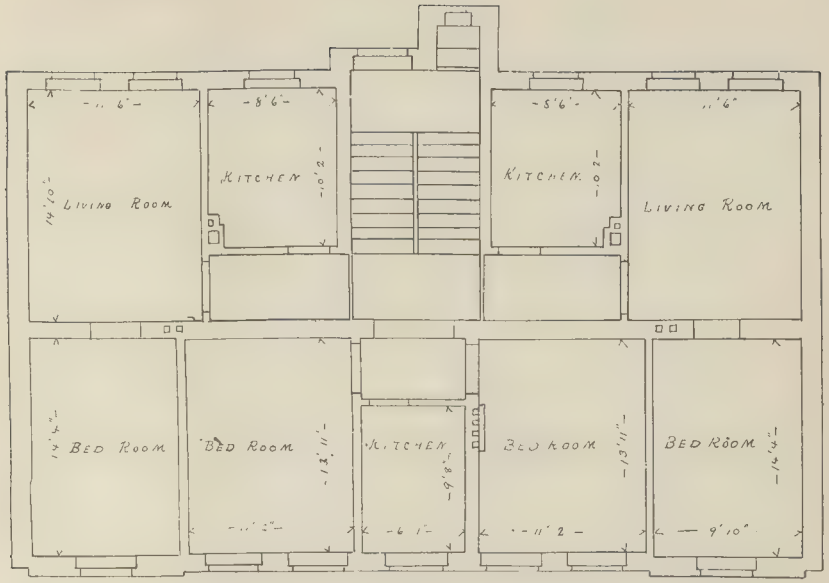
PLAN NO. 50 A.



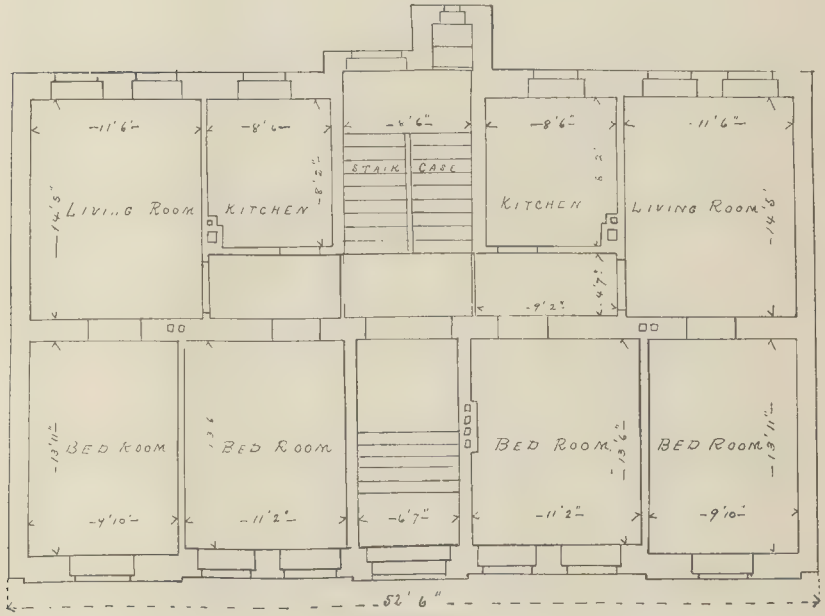
Front elevation and gardens.

LOEST'S COURT, HALLE ON THE SAALE, GERMANY.

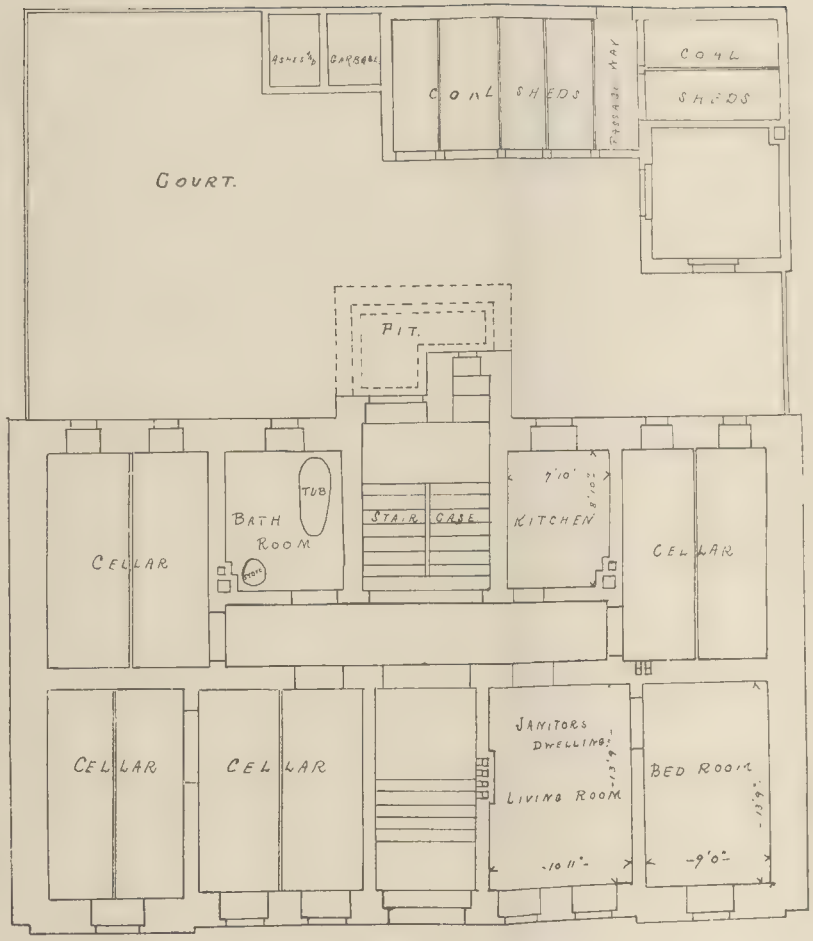
PLAN NO. 50 B.



Upper floors



Ground floor



Cellar and court

LOEST'S COURT, HALLE ON THE SAALE, GERMANY.

PLAN NO. 50c.

A census of the entire group of tenement buildings in 1892 gave the total number of inhabitants as 2,029. Of these, 150 were under 1 year of age, 390 from 1 to 5 years, 527 from 5 to 14 years, 198 from 14 to 20 years, 693 from 20 to 50 years, and 71 over 50 years. The females slightly predominated. The death rate among all the inhabitants was 13.31 per 1,000. The death rate for the whole city was 18.67 per 1,000. The mortality of children under 5 years of age in the buildings was 10.84 per 1,000 of all ages. Of the 150 births during the year two were illegitimate. The birth rate was more than double that of the city. There were no criminal convictions among the residents of the buildings.

The rental of typical three-room tenements in the basement is 108 marks ($25.70) per year; in the second story, 150 marks ($35.70); in the third story, 144 marks ($34.27); in the fourth story, 135 marks ($32.13). Four-room tenements in the first story rent for 225 marks ($53.55) per annum.

The original cost of a lot upon which a single block has been built was 4,000 marks ($952). The cost of construction was 32,000 marks ($7,616). The first block was opened for habitation October 21, 1883. The enterprise is purely a private investment, Herr Loest being sole proprietor. He is willing to sell blocks, but not individual tenements separately. About 75 per cent is borrowed capital, the amount having been obtained chiefly from speculative mortgage banks and private individuals. The interest paid for borrowed capital has been 4½ per cent. Being a purely private investment the amount of profit is not disclosed, but it has been satisfactory.

The total estimated value of this property, as a whole, was in 1892 1,518,000 marks ($361,284). The sum received for rent during the last fiscal year (1891) was 64,450 marks ($15,339.10). The number of unoccupied tenements was from 4 to 8 per cent.

A summary of taxes paid during a year upon one block of twelve tenements follows:

TAXES PAID UPON A BLOCK OF LOEST'S COURT, HALLE ON THE SAALE.

Name of tax.	Total.	Average per tenement.	Proportion paid by proprietor.	Proportion paid by tenant.
State building	$15.99	$1.33	All	None.
City building	10.98	.92	All	None.
City rent	23.47	1.96	None	All.
Church contribution	.12	.01	All	None.
Total	50.56	4.22		

Rents are paid quarterly in advance at the office of the proprietor. Three months' notice is required from a tenant of intention to leave, and three months of arrearages are allowed before an ejectment. The amount of arrearage during the last fiscal year (1891) amounted to 1,975 marks ($470.05). Rentals have remained stationary, while those in the city have declined. The principal causes of decline have been

lack of work and consequent curtailing of expenses by tenants, and further, more buildings have been constructed than are necessary to meet the demand. As a rule rents in Loest's Court are 10 per cent lower than for fairly similar accommodation in the neighborhood. It is estimated that 15 per cent of earnings is about the proportion which goes for rent.

The occupations and average annual earnings of 361 heads of families in Loest's Court appear in the following table:

OCCUPATIONS AND ANNUAL EARNINGS OF HEADS OF FAMILIES IN LOEST'S COURT, HALLE ON THE SAALE.

Occupation.	Number.	Average annual earnings.	Occupation.	Number.	Average annual earnings.
Barber	1		Merchants	4	
Basket maker	1	$178.50	Molders	13	$238.00
Blacksmiths	9	238.00	Night watchmen	2	142.80
Brewer	1	214.20	Overseer	1	285.60
Cabinetmakers	2	285.60	Porters	2	214.20
Carpenter	1	190.40	Railway employees	22	238.00
Coachmen	8	178.50	Restaurant keeper	1	
Coopers	3	214.20	Salesmen	9	357.00
Coppersmiths	9	238.00	Sawmill hand	1	238.00
Engineer	1	428.40	Shoemakers	7	
Foremen, miners	2	238.00	Sieve maker	1	214.20
Gardener	1	166.60	Stone setters	2	238.00
Laborers	148	166.60	Tanner	1	214.20
Locksmiths	94	285.60	Tile roofer	1	214.20
Masons	5	190.40	Tinners	4	238.00
Master bakers	2		Wood turner	1	178.50
Master butcher	1				

There were 333 heads of families who lived under one-half a mile from their places of work. The cost of a round trip on the electric railway was 10 pfennigs (2.38 cents). Only two lived more than 5 miles from their locality of labor.

Statistics of the average duration of tenancy during the last five years show that 127 families kept their dwellings for over five years, 84 from three to five years, 108 from 1 to 3 years, and 43 under 1 year. Tenants may not sublet or receive boarders. Applicants for tenements call at the office of the inspector, who shows them through the vacant apartments, and if they desire to rent they immediately pay down 2 marks (48 cents) as security. Before moving in they must pay a full quarter's rent in advance and sign a contract of tenancy.

The supervising force is composed of a manager for each group, who collects the rents, and a janitor for each block, who cleans the court and private street.

A library, reading room, meeting hall, and hall for religious services have been provided free of cost by the proprietor.

The tenants have formed a society for the purpose of becoming better acquainted with one another, and for organizing debates, lectures, readings, and other forms of entertainment. They have also a fund for the purchase of books, newspapers, and games. Political discussions are not permitted at the meetings. There is also a kindergarten provided.

Each building has a bathroom with a tub and shower bath apparatus and hot and cold water. Tenants furnish the fuel for heating. Each block has a laundry in the yard, with kettles for heating water. There are two large bakeries for the use of tenants. The laundries and other conveniences are freely used. Only about one-eighth of the adult inhabitants patronize the library and reading room.

HOLLAND.

SOCIETY FOR IMPROVING THE CONDITION OF THE WORKING CLASSES, AMSTERDAM.

In 1852 an organization, Vereeniging ten Behoeve der Arbeidende Klasse, was formed in Amsterdam, Holland, which has since developed into one of the most important housing societies of that country. The original aim was to acquire buildings which were in bad sanitary condition, improve them and rent them, and in addition to erect new buildings. The first part of the scheme was ultimately abandoned, but the second has received considerable development. Originally the society limited itself to a dividend of 3 per cent, and during that time its sphere of operations was restricted. In 1868, in order to secure greater capital, it raised the dividend to 5 per cent. As a result considerable development took place, and the capital was shortly increased to 1,250,000 francs ($241,250). Rents were raised without entirely sacrificing the philanthropic character of the work. This new move simply placed it upon a commercial basis. The capital stock in 1891 was 1,562,500 francs ($301,562.50), while the total value of the property owned was 2,350,000 francs ($453,550). Its buildings include 807 tenements of one and two rooms. Buildings for the most part are of three stories. The tenements are self-contained. The rent of a single room having 377 square feet of floor space is 4.75 francs (92 cents) per week. Two rooms, having 592 square feet of floor space, rent for 6.25 francs ($1.21) per week.

AMSTERDAM ASSOCIATION FOR BUILDING LABORERS' DWELLINGS, AMSTERDAM.

Another important housing company in Amsterdam is the Amsterdamsche Vereeniging tot het Bouwen van Arbeiders Woningen. This organization was the outcome of an official municipal inquiry, which showed that a large number of families inhabited unhealthy cellars and huts. The municipal administration lent encouragement by offering to furnish land for building purposes, make the necessary streets, and place gratuitously at the disposal of the society an architect and other municipal functionaries, as well as to loan a maximum sum of 4,500,000 francs ($868,500), at 4½ per cent interest. The conditions of the loan were that the society should have a guaranteed capital of 1,250,000 francs ($241,250), which, placed in the banks of the state, should bear

2 per cent interest; that the city should have its advances reimbursed first of all, and that after the capital stock was repaid to shareholders the city should enter into possession not only of the land but of the buildings as well.

The erection of houses was commenced in 1876. The number of dwellings erected up to 1891 was 774, while the sum total of the advances made by the city was 3,175,000 francs ($612,775). The tenements are self-contained, and the average surface of one-room tenements is 448 square feet. The rent of a single room tenement varies from 4.50 to 5.25 francs (87 cents to $1.01) per week; for a two-room tenement the rent varies from 5.70 to 7.75 francs ($1.10 to $1.50) per week. Rentals are fixed at the same price as that paid for fairly similar accommodation elsewhere. The average earnings of the heads of tenant families are from 30 to 32.50 francs ($5.79 to $6.27) per week.

SWEDEN.

SAINT ERIK BUILDING COMPANY, STOCKHOLM.

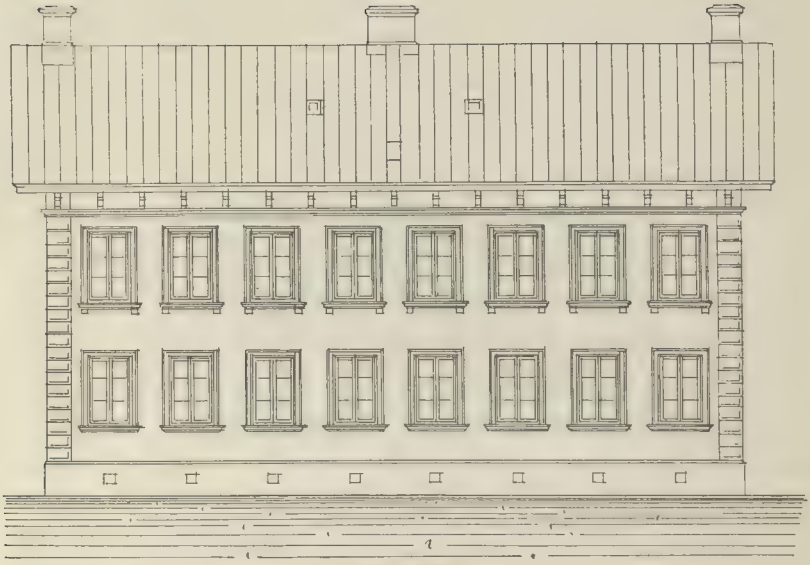
This company was organized in 1876, and is now the proprietor of seventeen model tenement buildings, in which one-room tenements rent for 165 kroner ($44.22) and two-room tenements for 180 kroner ($48.24) per annum. The present share capital is 349,400 kroner ($93,639.20). The rate of annual dividend paid has been 5 per cent. The maximum limit is fixed at 6 per cent. In addition a reserve fund of 72,000 kroner ($19,296) has been accumulated. The sum of 64,500 kroner ($17,286) has been borrowed from the Stockholm Fire Insurance Company and the municipal overseers of the poor. In 1891 the estimated value of the property belonging to the company was 491,818.97 kroner ($131,807.48). Rents have declined about 10 per cent in the last decade. Rentals are paid quarterly at the office of the company. The accompanying plans (plans Nos. 51 A and 51 B) show the front elevation and interior arrangements of one of the buildings.

The buildings are of stone and brick and are two stories high. A large space, unpaved but covered with gravel, is left at the rear in the form of a courtyard. In this courtyard the privies are situated. A cooking range, pantry, clothespress, fireplace, fuel storage, a garbage receptacle, and a privy are provided for each tenement.

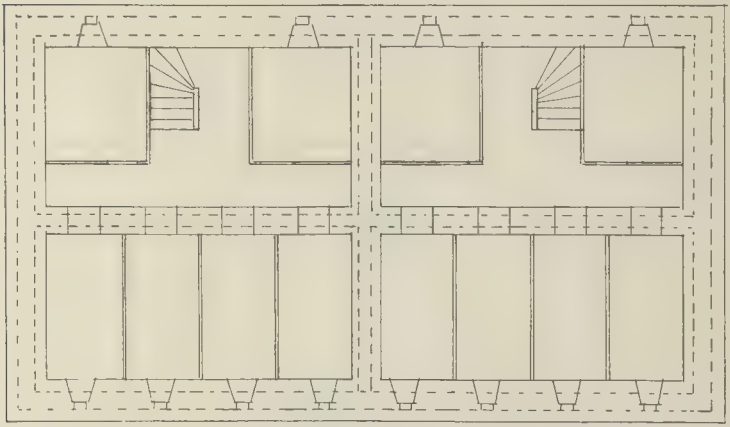
STOCKHOLM LABORERS' DWELLINGS COMPANY, STOCKHOLM.

One of the most interesting Swedish enterprises is the Stockholm Laborers' Dwellings Company, the floor plans (plan No. 52) of whose first buildings are given.

The cost of the lots was 55,000 kroner ($14,740), and of the buildings 132,500 kroner ($35,510). The land was purchased from the city, which did not sell cheaper than individual land owners but gave easier terms of payment. Seventy families are accommodated, mostly in tenements



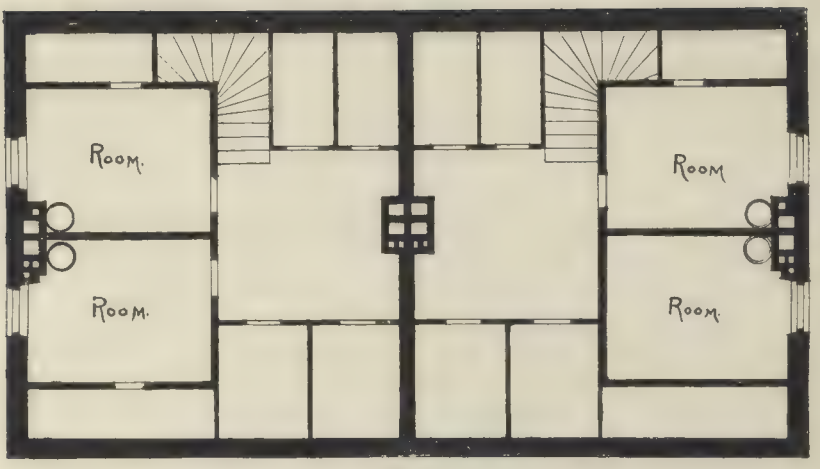
Front elevation.



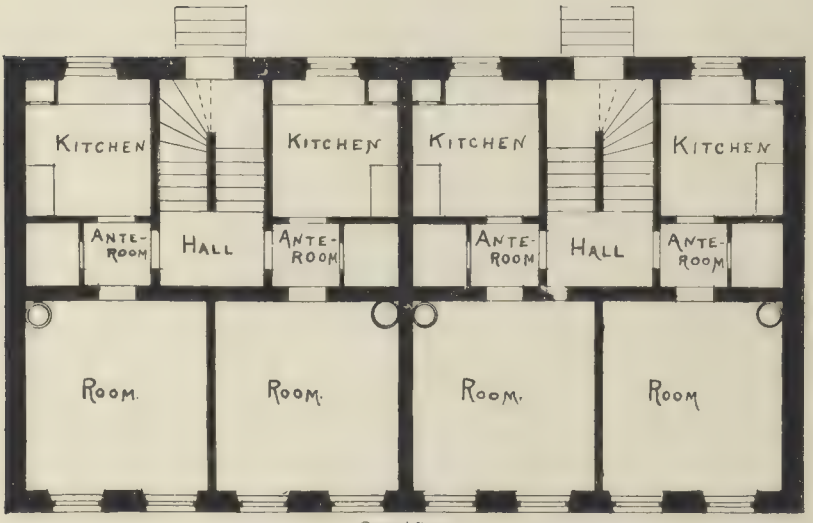
Cellar.

BLOCK BUILDING OF THE SAINT ERIK BUILDING COMPANY, STOCKHOLM, SWEDEN.

PLAN NO. 51 A.



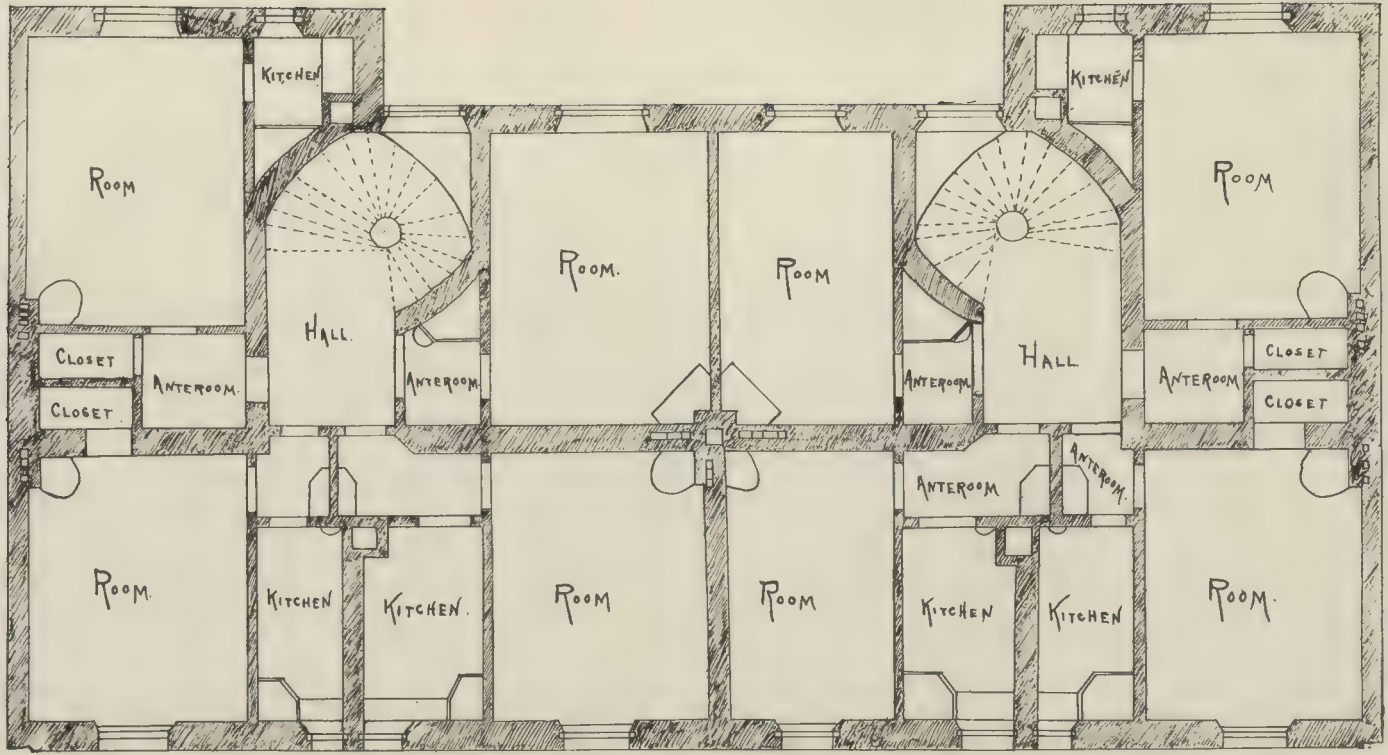
Attic.



Ground floor.

BLOCK BUILDING OF THE SAINT ERIK BUILDING COMPANY, STOCKHOLM, SWEDEN.

PLAN NO. 51 B.



BLOCK BUILDING OF THE STOCKHOLM LABORERS' DWELLINGS COMPANY, STOCKHOLM, SWEDEN.

PLAN NO. 52.

of one room and a kitchen, although there are a few single rooms. The rent of the latter varies from 110 to 120 kroner ($29.48 to $32.16) per annum. The rent of the former is from 150 to 170 kroner ($40.20 to $45.56) per annum. The dividends are limited to 4 per cent, and the surplus is applied to new buildings.

The company was formed with the idea of catering as much as possible to the lower strata of laborers; that is, those whose earnings do not reach above 16 kroner ($4.29) weekly. There is much need for good housing of this class in Stockholm at present, as rents are frequently so high that two families are obliged to live in the same room. The prevailing price for this accommodation is 225 kroner ($60.30) per year.

STATE RAILWAY, GOTHENBURG.

Houses for the employees of the state railway at Gothenburg were built in 1887, at a cost of 420,000 kroner ($112,560) for land and buildings. The houses are four stories high, with front and back entrances. Broad entries and stairways lead to the tenements, of which there are three and four on each landing. The houses contain 86 tenements, of which 8 have three rooms with kitchen and 78 one room with kitchen. The tenements have high ceilings and are quite roomy and well lighted. Each one has a large pantry and closet. Storage space is provided in the cellar and garret. In 1890 the total population of these tenements was 405.

The rentals vary from 25 kroner to 40 kroner ($6.70 to $10.72) for three rooms and kitchen, and from 8 kroner to 15 kroner ($2.14 to $4.02) for one room and kitchen per month. The buildings were constructed with money belonging to the pension fund of the Swedish state railway employees, and was loaned to the state railway on condition that the latter pay 20,000 kroner ($5,360) per annum and assume the burden of repairs and taxes.

ROBERT DICKSON FUND, GOTHENBURG.

Mr. Robert Dickson, in the years 1856 and 1857, donated a fund of 330,000 kroner ($88,440) to promote morality and piety among the laboring people of the city of Gothenburg and its suburbs. It was provided that the first step should be the erection of healthy and well furnished dwellings, which should be let on reasonable conditions to persons of small means who were known to be of good repute, preference being given to married people. Two-thirds of the fund was set aside for this purpose, the remainder being used for the promotion of the donor's wishes along other lines.

Six houses were first erected, each containing eight tenements of two rooms and kitchen. The total cost was 107,500 kroner ($28,810). The lot upon which the buildings stand contains 31,700 square feet. In 1860 each tenement rented for 13 kroner to 13.50 kroner ($3.48 to $3.62) per month. At present the prices charged are 17.50 kroner to 18 kroner

($4.69 to $4.82). Four two-story stone houses, each containing eight tenements of one room and kitchen, were afterwards built in another section of the city. A drying house, place for fuel storage, laundry, and bake house were also provided on the premises. Each of the tenements in these buildings at first rented for 6 kroner ($1.61) per month; at present 10 kroner ($2.68) are charged.

Eight two-story houses, each containing eight tenements of one room, kitchen, hall, and pantry and a separate entrance for each four tenements, were constructed in 1861. The monthly rental was originally fixed at 10 kroner ($2.68) per tenement; it is now 14 kroner ($3.75). In 1869 four two-story stone houses, containing eight tenements of one room, kitchen, and hall each, were erected. The assessed value of these houses is 75,000 kroner ($20,100). A tenement rents for 14 kroner ($3.75) per month. In 1873 ten stone houses, costing 369,697 kroner ($99,078.80), were constructed. These houses are of a standard type, and contain 80 tenements of one room and kitchen each, a tenement being let for 12 kroner to 13 kroner ($3.22 to $3.48) per month. There are a few tenements each of two rooms and kitchen, and for one of these 19 kroner to 20 kroner ($5.09 to $5.36) monthly are charged. The return for 1890 shows that the more recent building operations have increased the number of houses owned by the fund to 44, containing 339 tenements.

The housing operations of the Dickson fund have been uniformly conducted with profit. In 1890 there was a net balance of 31,436.71 kroner ($8,425.04). A table showing the receipts and expenditures during the ten years from 1881 to 1890, inclusive, follows:

RECEIPTS AND EXPENDITURES OF THE ROBERT DICKSON FUND.

Year.	Receipts.	Expenditures.	Surplus.
1881	$14,553.94	$6,644.94	$7,909.00
1882	14,428.63	6,332.68	8,095.95
1883	14,478.28	8,575.58	5,902.70
1884	14,430.78	8,287.53	6,143.25
1885	14,420.73	8,605.69	5,815.04
1886	14,441.83	9,971.98	4,469.85
1887	14,414.41	6,455.75	7,958.66
1888	14,397.30	8,884.71	5,512.59
1889	14,413.66	5,598.06	8,815.60
1890	14,299.88	5,874.84	8,425.04

The first step in the direction of improving the housing of working people in the city of Gothenburg was undertaken by the municipality. A plot of land was set aside for this purpose, and the city guaranteed a dividend of 4 per cent on the money loaned for building purposes. The surplus from rent, after expenses had been paid, was set aside for further building operations. Ten small one-story frame houses were first erected at a cost of 50,650 kroner ($13,574.20). In all there were 47 tenements—7 of two rooms and kitchen, 26 of one room and kitchen, and 14 of one room only. The houses were first let (in 1849) at a

monthly rental of 9 kroner to 10 kroner ($2.41 to $2.68) for two rooms with kitchen, 6 kroner to 6.66 kroner ($1.61 to $1.78) for one room with kitchen, and 4 kroner ($1.07) for a single room with fireplace. Additional buildings were constructed in 1849 at a cost of 37,377 kroner ($10,017.04). The new houses contained 40 tenements—16 of one room with kitchen and pantry, and 24 single rooms with fireplace and pantry. In 1850 the former were let at 6.66 kroner to 7 kroner ($1.78 to $1.88), and the latter at 4 kroner to 5 kroner ($1.07 to $1.34) per month. The rental of the same tenements is now 12 kroner to 12.50 kroner ($3.22 to $3.35) and 7 kroner to 8.50 kroner ($1.88 to $2.28) per month. The population of these houses in 1890 was 249. The dimensions of rooms in the last named houses are 17 feet 6 inches by 17 feet for the living rooms and 11 feet 7 inches by 11 feet for the kitchens. The ceilings are 8 feet 4 inches high. Costly repairs and improvements in the frame houses have absorbed whatever profits were acquired from the investment. In recent years the houses have been bought and are now controlled by the Dickson fund.

CHAPTER X.

MODEL SMALL HOUSES.

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MODEL SMALL HOUSES.

UNITED STATES.

S. D. WARREN AND COMPANY, CUMBERLAND MILLS, MAINE.

These houses are the property of the well known paper manufacturers, S. D. Warren and Company. The mill was started about thirty years ago, and there being few houses near it became necessary to erect dwellings in order to get employees. The motive of the enterprise at the beginning, therefore, was not to provide a paying investment.

Originally the rents were fixed at so low a figure as scarcely to cover the necessary expenses, such as repairs, maintenance, taxes, insurance, and improvements. Afterwards, however, as the mills grew the policy changed, and new houses began to be built in the neighborhood.

The company, recognizing that it was equivalent to a discrimination in wages to provide houses for a part of its tenants at such low rents, raised the rentals until they became equivalent to 5 per cent of the actual value of the property, plus the taxes, insurance, and water rates. Here is an example; suppose the value is fixed at $1,500, the rent is calculated on the following basis:

	Per year.
Five per cent of $1,500 (value)	$75.00
Taxes	22.00
Water	10.00
Insurance	1.50
Total	108.50

or, in round numbers, $9 per month.

It will thus be seen that at the present time a liberal return is received by the proprietors upon their investment. Putting the burden of taxes upon the tenants is considered a measure of security to the company, because it makes tenants more careful in voting for measures which might influence the tax rates.

The company employs about 1,000 hands, representing probably 400 families. About 100 families are housed by the company, and most of the rest live in their own homes. A large number of those owning homes formerly occupied the company's houses, but were able to save sufficient means to build for themselves.

The later dwellings built by this company are among the most tasteful, attractive, and conveniently arranged dwellings to be found anywhere. The accompanying plans (plans Nos. 53 A and 53 B) show the front and side elevations and arrangement of rooms.

The frontage of the lot upon which a typical house stands is 50 feet and its depth 100 feet. The building occupies 720 square feet, leaving more than 85 per cent of the lot at the side and rear for a yard and garden.

The house is one and one-half stories in height and is built of wood. A cellar with cemented floor serves as a storeroom for wood, coal, and provisions. The water-closet is situated, as a rule, in the cellar, and connects with the public sewer. The only plumbing in the house is that made necessary by the closet and sink. There is no restriction as to the quantity of water that may be used. Coal mostly is used for heating and kerosene for lighting. A cooking range is not provided. The house has a pantry, and each sleeping room is furnished with a clothes-press. In the kitchen is a hinged table. A can is provided for the garbage, and this is removed once every fortnight. A porch, 7 feet by 12 feet 9 inches, over which the upper story projects, occupies one corner. The house has window shutters, and is well painted and kept, thus presenting an extremely neat appearance. The interior is papered, has freshly painted woodwork, and some of the floors are stained and finished in oil. The company does the external painting and puts the interior in good condition before a tenant moves in. If any changes are to be made or papering done while the tenant is occupying the building he must bear the expense. The house contains accommodations for one family only.

Interior accommodations consist of a kitchen 11 feet 9 inches by 12 feet 6 inches, a dining room 10 feet 7 inches by 12 feet 6 inches, a parlor 12 feet 2 inches by 15 feet 5 inches, two bedrooms, each 11 feet 3 inches by 12 feet 2 inches, and two others 9 feet 3 inches by 10 feet 7 inches, and a small chamber 6 feet 8 inches by 6 feet 6 inches. The ceilings are 8 feet 6 inches in height.

The rental for this type of house is $9 per month. Could its counterpart be found in the vicinity, private owners would unquestionably charge as high as $12 per month. The existing value set upon the property is $1,500. The land is not counted, for the reason that it was purchased many years ago at a low figure.

The company owns 12 four-room, 8 five-room, 30 six-room, 39 seven-room, 3 eight-room, 3 nine-room, and 1 twelve-room houses. In addition, it has provided 2 boarding houses, with fifteen and twenty rooms, respectively.

The building expenses have been about $125,000, and the total estimated value of the entire property is $150,000.



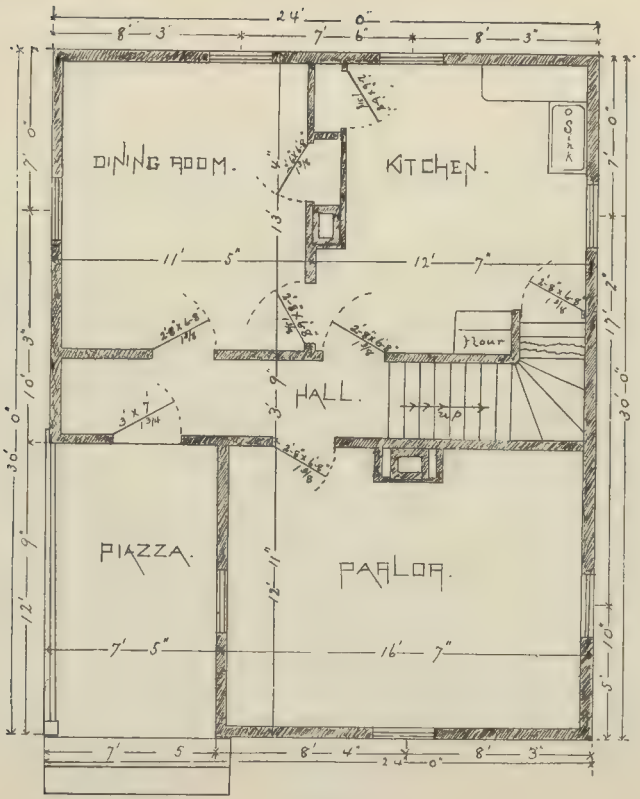
Front Elevation



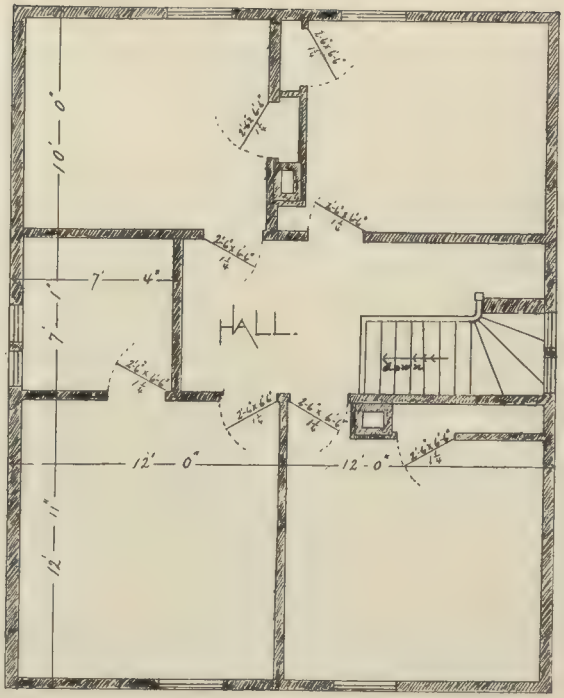
Side Elevation

HOUSE OF S. D. WARREN AND COMPANY, CUMBERLAND MILLS, MAINE.

PLAN NO. 53 A.



First floor



Second floor

HOUSE OF S. D. WARREN AND COMPANY, CUMBERLAND MILLS, MAINE.

PLAN NO. 53 B.

A table showing the rental of each class of houses belonging to the company appears below:

MONTHLY RENTS OF TENEMENTS OF S. D. WARREN AND COMPANY.

Houses of—	Tenements.	Rooms per tenement.	Monthly rent per tenement.	Houses of—	Tenements.	Rooms per tenement.	Monthly rent per tenement.
One tenement:				Four tenements:			
Two	2	5	$6.00	One	1	4	$4.90
Four	4	5	6.75		2	4	5.00
Five	5	6	6.90		1	5	6.00
Two	2	6	7.25	One	2	4	4.30
Four	4	7	7.50		1	4	4.60
Two	2	7	7.90		1	5	6.20
One	1	6	8.20	One	2	7	6.30
Four	4	6	8.50		2	7	7.35
Eighteen	18	7	9.00	Six tenements:			
Eleven	11	7	9.20	One	2	4	3.70
Two	2	8	10.40		2	4	4.70
One	1	8	11.25		2	6	6.75
Two	2	9	11.30	One	2	4	4.70
One	1	12	14.45		2	6	6.60
One	1	9	15.80		2	6	6.70
Two tenements:							
Six	12		7.25				

The houses are always occupied and there is no loss of rental. Rents are paid monthly by deducting them from the earnings of the employees. Tenants are never ejected. When a tenant is sick the rents run on, and liquidation is permitted upon recovery of health. Tenants need not give any notice of intention to quit. Strikes have been unknown in this establishment. All wages in this establishment are paid by the day; there is no piecework. Boys over 16 years of age earn $5 per week, and 200 girls get the same wages. In the summer time girls working in the sorting room earn $1 per day. The maximum wages are $2.50 per day to tenders of paper-making machines, mechanics, and carpenters. Other men whose work requires a certain degree of skill earn about $2 per day. Over one-third of the men in the mill earn $2 per day or more.

An average of about 14 per cent of the earnings of tenants of the company's houses is paid for rent. Tenancy is very stable and few changes occur. Tenants are not permitted to sublet their lodgings, but may receive boarders.

There are no formal regulations. All tenants live within half a mile of the mill. The experience of the company goes to show that houses for one family are the best and most appreciated; the others are, indeed, somewhat unpopular.

Tenants may not buy the houses built by the company; but those whose incomes justify it are encouraged to become proprietors. Some years ago private speculators built tenement houses in the vicinity of the mills. The company, not wishing to construct any more tenements for rent and desiring to offset speculative builders, bought and improved a tract of land. A drainage system was established and streets were laid out. Lots were sold at actual cost to employees who were worthy and who received sufficient incomes to pay for their houses

on the installment plan. The requisite funds were loaned at 4 per cent interest. These circumstances took place about three years ago, and up to the present six houses have been built on this land. There is room for several hundred, and doubtless they will be built in course of time. A man earning wages as low as $10 per week is not considered by the company to be entirely competent to assume the burden of house ownership in this way. A good suitable house alone costs $2,000, that is, a house including a cellar, three rooms on the first floor, and chambers and bathroom on the second. A lot 66 feet by 132 feet would cost $250, and improvements, plumbing, etc., would bring the total cost up to about $3,000. Four per cent interest on this would represent $120, taxes $23, insurance $4, and water $11, or a total of $158. This, with the liquidating installments, would amount to not less than $20 per month which the purchaser would have to pay. Sometimes a family, by combining the earnings of all its members, is enabled to meet the necessary payments. Indeed, in employing young people the company always gives the preference to those who help their parents. A man earning $12 per week may, by strict economy, come into the possession of his own home at Cumberland Mills. To secure a loan he ought to have at least $400 in ready money to meet all contingencies. The only reservation the company makes in deeding land to working people is against privies and digging wells. The principal reason given for not allowing tenants to buy the model dwelling houses is because the company does not wish to dispose of the land, which may be needed in the future for other purposes.

As regards the nationality of employees, they are mostly American born. Three or four are Irish, a goodly number are Canadians from the eastern provinces, and about forty heads of families are Danes.

In the making of paper only a limited number of skilled workmen are needed, but the work is such as to afford opportunities for employment to all ages and grades of persons. Every member of a family old enough to work may find some sort of labor in the mill. This is a great advantage over employment in cotton mills, where frequently more women than men are employed. All but one or two of the paper makers in the company's employ have learned their trade in this mill.

The company maintains a free library and reading room. This institution is accessible to all employees. It is situated on the second floor of the building containing the company's office. The library contains about 4,000 volumes. In round numbers, the original cost was $5,000, and the current running expenses are $300 annually.

The women employees have a literary society, which meets in the library at regular intervals. No charge is made for use of library and reading room. The company owns, also, a large hall in the town for lodge and other society gatherings. The cost of this was somewhat near $10,000, and rentals accruing therefrom amount to $400 per year.

HOWLAND MILLS CORPORATION, NEW BEDFORD, MASSACHUSETTS.

A group of houses with pleasing architectural dispositions has been built in the neighborhood of the new factories erected by this corporation in the southwestern portion of New Bedford, not far from the bay. The lots vary considerably in size, so that no one of them could well be selected as an average. They are sufficiently large to allow for gardens, walks, and front parking. A sketch of the building selected for description is given, as well as a plan of the interior arrangement (plan No. 54).

This dwelling is a thoroughly built frame structure of two stories, and occupies a lot of sufficient size to furnish a yard and garden at the side and rear. There is a cellar 8 feet deep, paved with concrete and supplied with laundry trays and a place for fuel storage. The house has through ventilation everywhere. The water-closet is situated inside the building and is provided with an automatic flush. The plumbing is of the most approved type. Waste water and refuse go to the sewers. An unlimited quantity of water is allowed. Heating is done by stoves and lighting by oil. No cooking range is provided by the owner. The pantry is 10 feet by 10 feet, and contains a sink, a fuel bin, and compartments for bread and flour. There is also a small closet in the kitchen.

A bathroom, heated from the kitchen, is situated on the second floor, and is supplied with hot and cold water and a marble washstand. This house contains seven well papered rooms. Their disposition and size are shown in the plan. The first story is 8 feet 6 inches and the second 7 feet 8 inches high. The rental of the house is $10 per month. It was occupied, when visited, by a spinner earning, on the average, $16 per week. Allowing fifty weeks for the working year, this tenant paid 15 per cent of his earnings for rent. The house was built in 1888, and cost $2,000.

The corporation owns 50 houses, and a boarding house for men only, in this neighborhood. Twenty-five houses were built in 1888 and the remainder in 1889. Fifteen of them have five rooms and 35 seven rooms each. The cost of the former class was about $1,800, and the rental is $8.50 per month. The cost of the latter class, as has already been noted, was $2,000, and the rental is $10 per month. The total cost of the land upon which the group of model dwellings has been built was $3,500, and the total cost of the houses $104,000. To this must be added $38,000 spent for sewerage, drainage, water connection, and other improvements. Only a comparatively small portion of the land has so far been built upon, so that it is not fair to consider this latter item solely as a charge against the houses already constructed.

The total amount received for rent from all the dwellings during the fiscal year for which returns were given was, in round numbers, $5,600.





HOUSE OF HOWLAND MILLS CORPORATION, NEW BEDFORD, MASSACHUSETTS.

PLAN NO. 54.

Tenants are not allowed to become proprietors of the houses already built, but they may buy vacant land from the corporation and build for themselves. To such people land will be sold on long time, and every reasonable assistance will be given to help them to build. The reason given for not selling the dwellings already constructed is that they are needed for persons in the employ of the corporation. There was no loss of rental from unoccupied dwellings during the fiscal year. As rents are deducted weekly from wages nothing was lost from arrearages. Tenants can live in the houses only while employees of the company. The dwellings themselves are too far removed from other industrial establishments to permit any but employees in the corporation's mills to reside in them. Rentals have not been advanced since the buildings were opened for habitation.

The occupations and earnings of rent payers, who in most cases are heads of families, in the group of model dwellings are shown in the table below. All of these are not necessarily heads of families, for the reason that sometimes but one member, a son or a daughter, works in the mill. In such cases the parents are entitled to tenancy, but the rent is paid by the corporation employee.

OCCUPATIONS AND EARNINGS OF TENANTS OF HOUSES OF THE HOWLAND MILLS CORPORATION.

Occupation.	Number.	Weekly earnings.	Occupation.	Number.	Weekly earnings.
Back boy	1	$5.73	Reeler tenders	1	$6.96
Beamers	1	10.66		1	8.40
	1	12.76		1	9.68
Boss of picking room	1	7.40	Roving hand	1	7.32
Boss picker	1	9.50	Section hand	1	8.05
Comber	1	7.32	Spare hand	1	7.40
Comb winders	1	4.54	Speeder	1	9.41
	1	5.51	Spinners	2	6.38
	1	6.16		2	7.09
	1	6.30	Spoolers	1	4.61
	2	6.38		1	4.90
Doffers	1	5.51		1	6.40
	1	6.31		1	7.00
	2	7.03	Second hand	1	15.00
Doubler	1	6.38	Third hands	7	7.00
Mule spinners	1	15.87	Third hand comber	1	8.35
	1	19.59	Twister	1	9.50
Oiler	1	7.32	Twister tenders	3	9.50
Overseer	1	18.00	Picker tenders	2	7.40
Piecer	1	7.03			
Reelers	1	5.99			
	1	6.38			

Tenants are permitted to sublet to other employees in the mills, and they may also receive boarders.

But two deaths, one of which was accidental, occurred in this group of dwellings during the year for which returns were given.

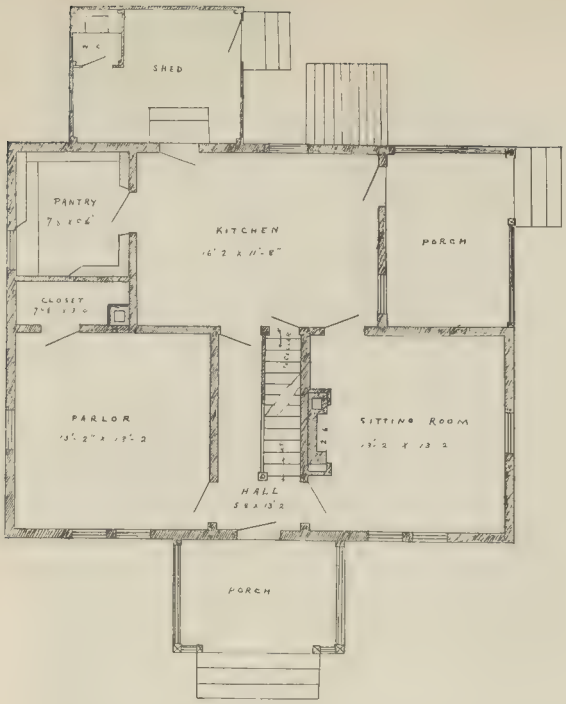
The houses have been built as a special inducement to employees, because the mills are so far removed from the city proper, and not from economic motives on the part of the corporation. Every house is situated within a radius of half a mile from the factory, so that the employee finds himself conveniently located with reference to his work.



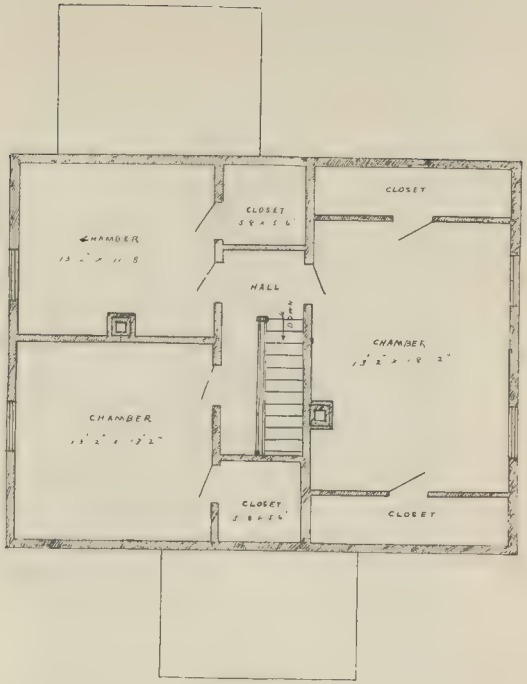
Side elevation

HOUSE OF THE WILLIMANTIC LINEN COMPANY, WILLIMANTIC, CONNECTICUT.

PLAN NO. 55 A.



First floor.



Second floor.

HOUSE OF THE WILLIMANTIC LINEN COMPANY, WILLIMANTIC, CONNECTICUT.

PLAN NO. 55 B.



FOUR TYPES OF HOUSES OF THE WILLIMANTIC LINEN COMPANY, WILLIMANTIC, CONNECTICUT.

PLAN NO. 55 C.

There are no annexes, such as libraries, reading rooms, or halls for social or literary reunions. Each house, however, has a bath and laundry. The architecture of the group is varied and presents a most tasteful and attractive appearance.

The men's boarding house cost $6,000. It contains bathrooms and other conveniences, and accommodates about twenty-four people. It is conducted by a person chosen by the proprietor, and this person, without paying rent, is allowed the profits accruing to the enterprise. His charges are $4 to $4.50 per week for board and $1 for five meals to day boarders. The house is always full.

Rentals are fixed so that the gross income is 6 per cent, but from this must be deducted the taxes, expenses of maintenance, repairs, which, however, are not as yet burdensome, and the loss of rental from the boarding house. The net earnings are probably in the neighborhood of 3 per cent, and they should grow with the increase in income from rent, for the reason that the $38,000 spent for sewerage, drainage, and water connection should be a diminishing charge as other land is sold for the erection of dwellings by employees themselves.

WILLIMANTIC LINEN COMPANY, WILLIMANTIC, CONNECTICUT.

The type which has been selected (plans Nos. 55 A and 55 B) for description is placed on a lot whose superficial area is 10,500 square feet. The frontage of the dwelling is but half that of the lot, and as the dwelling occupies little over a tenth of the square surface of the ground, an ample portion remains for a lawn, walks, garden, clothes yard, etc. The house is a two-story frame, and contains six rooms. The kitchen is 16 feet 2 inches by 11 feet 8 inches; the parlor, sitting room, and one sleeping room are each 13 feet 2 inches by 13 feet 2 inches, and there are two bedrooms, one 13 feet 2 inches by 18 feet 2 inches and the other 13 feet 2 inches by 11 feet 8 inches. There are also a pantry, five closets, and two hallways. The ceilings are 9 feet high in the first story and 8 feet 6 inches in the second. The rents charged amount to $1.93 per week for this type of house, which is probably a little over one-third of what would be charged for fairly similar accommodation in the neighborhood. Smaller houses rent for from $1.62 to $1.73 per week.

This company commenced its housing operations in 1865. In the modern group there are forty houses, four types of which are shown (plan No. 55 C), all of six rooms, though varying considerably in the arrangement and size of rooms and closet accommodation. All the houses have front porches opening either to halls or vestibules. The estimated value of the property is $60,000. Three per cent gross is provided for in the fixed rentals, which are deducted from wages.

Notwithstanding the superior character of the housing and the low rentals, about 5 per cent of the lodgings were unoccupied during the year for which returns were received. Tenants are required to give

two weeks' notice of intention to move. Rents were lowered in July, 1885, in consequence of a reduction of wages. The old rate of wages was subsequently restored but the rents were not advanced.

The corporation houses about two-thirds of the heads of families among its male workmen. The foremen, as a rule, own their dwellings. It is calculated that the rental charged absorbs from 10 to 12½ per cent of the earnings of tenants.

No formal lease is entered into. A candidate for a house makes an application, which the agent considers. There are no special regulations, as the people dislike to feel that they are under control. The company's idea is to put people on their honor.

The dwellings are all conveniently situated near the factory, the farthest being under half a mile distant. In building the houses the company has sought to vary the architecture as much as possible. The company formerly gave prizes for the best flower gardens.

The company has provided a library and a reading room for the benefit of its employees and free also to inhabitants of the town. They are open from 12 m. to 9 p. m. The cost of maintenance involves the expenditure of about $10 a week in salaries, besides the cost of heating, gas, and new books. The building in which these institutions are housed was built specially for the purpose.

This company believes that the people do not wish to be helped gratuitously. In 1884 a well-intentioned agent tried to get all employees under 16 to go from 9 to 10 in the morning to a room which was heated and well ventilated and provided with seats, where bouillon or milk and crackers were served free. The half hour following was given to play. It was found that the young people would not go voluntarily, and some so far objected to the practice that they left the works. The women were also compelled to leave their working room during the dinner hour and were invited to occupy this room in which to eat their lunch. This also was strenuously objected to, some averring that they did not wish to mix with working partners of objectionable nationalities, while others feared that the contents of their dinner pails might perhaps suffer in comparison with the contents of those belonging to their neighbors. In the same way magnifying glasses which were given to inspectors of thread, in order that their eyesight might be protected, were not received with favor. There is undoubtedly something in the American temperament, or perhaps one had better say in the temperament of laborers working in America, which is hostile to gratuitous help from employers.

PULLMAN'S PALACE CAR COMPANY, PULLMAN, ILLINOIS.

This town, which is the creation of Pullman's Palace Car Company, of which Mr. George M. Pullman is the founder and president, has often been described as a whole, but the house environments of its inhabitants have not received the same attention. The following pages,

therefore, are devoted especially to the latter feature of this manufacturing town.

A few words at the outset as to the general plan upon which the town has been laid out. Land near Lake Calumet was selected and bought for $800,000. The same property is now estimated to be worth upward of $5,000,000. The building of the town followed immediately. A drainage system, costing $300,000 and modeled after that of Berlin, was first perfected. A system of drains and laterals takes the rain water from the houses and streets into Lake Calumet. Another system of pipes, entirely independent from and running below these, takes the sewage from the houses and shops to a reservoir, holding 300,000 gallons, under the water tower. All the sewage is thence pumped to a farm of 140 acres near by, where all kinds of produce are raised—not merely enough to supply the town itself, but enough to leave a surplus to be shipped to Chicago and other points. Near this sewage farm is another of 420 acres, which is devoted to dairy farming and fancy stock raising purposes. The town draws its supply of milk, cream, and butter from this farm. Both are the property of the company and are paying investments, as is every institution in the whole community, with the exception of the hotel. This has not turned out a remunerative investment because a strictly first-class place is conducted, while the transient travel is light.

Next followed the laying of water pipes, and then streets were laid out and well paved. Afterwards the principal buildings and factories were constructed. Mr. Pullman personally supervised the laying out and building of the town. The grounds are all graded and a space from 20 to 30 feet in width is terraced and sodded in front of the houses. The back yards are inclosed by high fences, and every house has a wood and coal shed. A macadamized 16-foot alley runs through the center of each block. The rear doors opening to these alleys from the yards bear the same numbers as the houses, so that delivery of marketing and other purchases may be conveniently made from the rear. Nothing offensive is allowed in the alleys. All who keep horses have them cared for at the company's large barns. Garbage and ashes are removed at frequent intervals and are taken to a distance from the town and buried. The successive blocks are unlike in appearance, presenting pleasing architectural variety. At intervals of 30 feet shade trees have been planted along both sides of the streets, and on the main streets flowers are grown around the trees. Open spaces planted with shrubbery and flowers constitute a park, in the midst of which the houses have been built. The whole town has the appearance of a park studded with buildings.

There are nearly 8 miles of paved streets in Pullman. The width of the ordinary street is 66 feet, and the distance between houses about 100 feet. The main boulevard is 100 feet wide. The streets are drained and have good cobblestone gutters, well provided with catch basins.

There are two classes of houses at Pullman, the tenement buildings and the single houses. Particular types of each of these have been selected for description. First, the tenement houses will be considered. The location of one of these is on a lot 75 feet wide by 110 feet deep, about 30 per cent of which is covered with the building. There is open space all around the house, and that in the rear is, for the most part, covered with slag and a top-dressing of gravel. It is used principally as a playground for children, though a section of it is employed for clothes drying. The building is three stories high, and is built of brick on a stone foundation. It has a cellar, used for storage and fuel, which is paved with cement concrete. The roof is of slate and gravel. The staircases are of wood. Only the ordinary precautions have been taken to render the construction of the building fireproof. The only means of escape in case of fire is by the stairway. Only one door in each tenement opens to the hallway leading to the stairs. There are no arrangements to prevent the promiscuous mingling of occupants upon landings, stairways, and corridors. Four tenements are located on each floor. Every room communicates directly, either by doors or windows, with the open air. The Durham system of ventilation has also been used. There are separate water-closets for the use of tenants of each tenement situated on the same floor. The Jennings hopper-closet system is employed. Great care has been exercised to secure good plumbing. Ordinary stoves are employed for heating. Gas is laid to every room, but its use for lighting is optional with the tenant. Washing and drying of clothes is done in the separate tenement. An ordinary cook stove or a gas stove, if desired, is placed in each tenement. Garbage receptacles exist in the form of barrels in the rear. A small pantry has been put in each tenement. There are no clothespresses, fireplaces, heating registers, window shutters, balconies, hanging lamps, mirrors, or similar accessories provided by the company. There are no interior decorations except the ordinary trimmings of woodwork.

The tenement house of type A, which is being described, contains 12 families. There are 8 tenements of three rooms each and 4 of four rooms. The size of living rooms in the three-room tenements is 15 feet by 13 feet, and of typical bedrooms 15 feet by 7 feet 6 inches and 12 feet by 7 feet 6 inches. In four-room tenements the parlors are 15 feet by 7 feet 6 inches, the kitchens 15 feet by 13 feet, one bedroom 12 feet 4 inches by 8 feet, and another 9 feet by 9 feet 6 inches. The ceilings are from 8 feet 6 inches to 9 feet in height. The pantry and linen closets are 7 feet 6 inches by 3 feet for the most part, though some are about a foot larger. The total cost of the building and land of a tenement house of type A was $13,050. The gross rentals are $1,224 per annum. The property is now worth probably $15,000. It is owned by the company and rented to men who work in the shops. Gas and water are paid for by the tenants.

The Pullman property is taxed in bulk. Ten per cent of the gross rent will cover repairs and taxes at the present time. The three-room tenements in the first story rent for $8.50, and in the second and third stories for $8 per month. The four-room tenements rent for $9 per month. The earnings for a year of the heads of families in the tenement house building which has been described were as follows: 2 cabinetmakers at $700 each; 2 car builders at $600 each, 1 at $575, 2 at $500 each, and 1 at $650; 1 laborer at $450, 2 laborers at $400 each, and 1 laborer at $350. The rents represent about 20 per cent of the earnings of the head of the tenant family. The tenements are very popular and are always occupied.

The tenant seems to feel that living in a flat secures certain advantages. For instance, he has a home at a lower rent, and in case of sickness and trouble he has help close at hand. The common hallway is lighted, and the whole building cared for by a janitor, services which are not rendered in single houses. He has the advantage of reducing his living expenses while at the same time dwelling in improved streets and in close proximity to parks and gardens.

There is a large variety of single houses, the rents ranging all the way from $15 to $50 per month. These houses are adapted to the needs of workingmen and employees with fair salaries. The average rental of all classes of tenements in Pullman is estimated to be $14 per month.

The type of single house selected for description has a frontage of 17 feet and a depth of 32 feet. It covers about 25 per cent of a lot having equal frontage. It is built of brick, two stories high, with basement, which is used in some houses of this type for kitchen and dining room. The roof front is of slate, the top part being of gravel. There is but one single street entrance for the family. The water-closet is situated inside the house. The Durham system of ventilation and the Jennings hopper closet are in use. The plumbing is good, and there is water on both floors. An ordinary cooking range is placed in the kitchen. Fuel storage is provided in an outside shed. Garbage is put in a barrel placed in the back yard. There are two cupboards, seven gas jets, and three chandeliers as fixtures. There are window shutters, and an uncovered front stoop about 4 feet by 6 feet in size. The building has a pressed brick front; otherwise there is no attempt at external decoration. In the interior the woodwork is painted and the walls are papered and the ceiling calcimined. The house contains five rooms—a parlor 16 feet by 12 feet, a kitchen 14 feet by 16 feet, one bedroom 12 feet by 16 feet, and two others 7 feet by 8 feet. The ceilings are 10 feet and 10 feet 6 inches high in the respective stories. The original cost of the house ready for habitation, including the price of land, was about $1,580. The rental of this particular type of house is $18 per month.

The company owns all houses and tenements. It does not yet sell houses to individual workingmen, though it is credited with the inten-

tion to do so later. This policy, it is claimed, could not be inaugurated until the public improvements have been fixed beyond the chance of interference or change, other than extension.

All rents are paid fortnightly and in advance. By the conditions of the lease tenancy may be terminated at any time upon ten days' written notice.

It is estimated by the representative of the company that 33 per cent of the wages of the heads of tenant families occupying single houses is absorbed in rent.

Dwellings at Pullman, of whatever class, are rarely vacant. As soon as one is empty a new tenant takes it. In the town there are brick tenements for 1,790 families. There are seventy frame tenements.

The healthfulness of the town of Pullman is shown from the following statistics: The total population September 30, 1892, was 11,702. The total number of deaths for the fiscal year ending July 31, 1892, was 169. The death rate was therefore 14.4 per 1,000. For the same period the birth rate was 34.7 per 1,000 of population.

The nativity of wage earners working in the establishments, only a portion of whom live in the town, appears in the subjoined table:

NATIVITY OF EMPLOYEES OF PULLMAN'S PALACE CAR COMPANY, SEPTEMBER 15, 1892.

[From The Town of Pullman, by Mrs. Duane Doty.]

Types.	Countries where born.	Number.	Total of types.
American	United States	1,796	1,796
Scandinavian	Denmark	89	1,422
	Finland	1	
	Norway	169	
	Sweden	1,163	
German	Austria	66	824
	Bohemia	26	
	Germany	732	
British	Australia	2	796
	Canada	264	
	England	365	
	Scotland	131	
	Wales	34	
Dutch	Holland	753	753
Irish	Ireland	402	402
Latin	Belgium	16	170
	France	26	
	Italy	99	
	Spain	1	
	Switzerland	28	
All others			161
Total			6,324

The average earnings of all employees during the year ending July 31, 1893, was stated to be $625. It was found in October, 1892, that the average length of time operatives had remained in Pullman was four and one-fourth years.

Tenement houses were first built in Pullman in 1881, and the construction of single houses began the following year.

The various institutions of public welfare which have been organized in Pullman have been frequently described. Only the merest mention

of them need here be accorded. The library contains 8,000 volumes, besides receiving seventy current papers and periodicals. It is the personal gift of the president of the company to the town. It is a circulating library, and 25 cents per month is charged for its use. During the fiscal year 1892, 20,221 books were borrowed.

The Loan and Savings Bank was organized in 1883. At the end of the fiscal year 1892 the resources consisted of—

Loans and discounts	$488,227.83
Bonds and stocks	372,850.00
Due from banks and depositories	206,386.37
Real estate and fixtures	2,827.82
Cash	78,538.71
Total	1,148,830.73

The liabilities were—

Capital	$100,000.00
Surplus	70,000.00
Profit and loss	21,136.15
Dividend unpaid	3,000.00
Deposits, commercial	378,141.04
Deposits, savings	576,553.54
Total	1,148,830.73

May 26, 1893, there were 2,585 savings depositors, their aggregate deposits being $677,328.02, or an average of $262.02 for each depositor.

Schools, churches, theater, arcade with shops, and other public buildings have been erected. They are all rented; indeed, every facility at Pullman must be paid for. It is fairly certain, however, that the accommodation is more wholesome and living surroundings are more agreeable than in other places in the vicinity and in Chicago. This fact is held by the company to offset the somewhat higher rents charged where this is the case.

MERRIMAC MANUFACTURING COMPANY, LOWELL, MASSACHUSETTS.

The frontage of the lot upon which the building hereafter described is situated is 23 feet. The total area is 1,610 square feet, 1,344 of which have been built upon. The open space is found between the ells, which extend to the rear of the lot. This space is unpaved, and is given up entirely to the free use of occupants. It is only sufficient for foot passage and clothes drying.

The building is three stories in height, or 33 feet. It is constructed of stone and brick with roof of gravel. The thickness of exterior walls varies from 8 inches to 1 foot. Brick walls intervene between each section of the building, and stairways are partitioned front and rear, so that reasonable precautions against fire may exist. Staircases are constructed of wood. There is an unpaved cellar under the entire building, which is used for storage of fuel, provisions, etc., each tenant

having a space partitioned off for his exclusive use. Each tenement has its own front and rear entrances and its own private staircase, completely separated by partitions in front and rear. The privacy is as absolute as if every tenant lived in a separate house. The disposition already described makes unnecessary any regulation to secure independence and isolation of the individual family. The accompanying plans will give a general idea of the external appearance of the building and the disposition of the interior parts (plans Nos. 56 A and 56 B). The plans show two adjoining buildings of the kind described.

Every room communicates directly, either by doors or windows, with the open air. There are no special facilities for ventilation. Each tenement has a separate water-closet for the exclusive use of occupants, situated inside the building. A short hopper and flush system is used. The soil pipe is of iron with leaded joints, and is vented through the roof. It is connected with the sewer outside the building. An unlimited supply of water is available, but the tenant in addition to his rent pays the water rates, about $10 per year; a family of five persons or less, and having but one sink, is charged only $6 per year. Heating is done by stoves and lighting by lamps furnished by tenants. Cooking ranges are not supplied by the company. The only garbage receptacles are barrels in the alley at the rear. Two closets have been placed in each kitchen. There are also two wall closets in each front room, and two stationary wardrobes in two other rooms. There are no fireplaces, but holes for stovepipes have been made in partition walls in all rooms where there are no chimneys. There are outside shutters to all windows. No interior decorations have been attempted. In a few cases the walls have been painted. The exterior appearance of the building is severely plain.

Three families live in the building. It contains 1 four-room and 2 five-room tenements. The kitchen is 14 feet 6 inches square in the four-room tenement, and 15 feet 3 inches by 14 feet 6 inches in each five-room tenement. Parlors are 14 feet 9 inches by 11 feet 9 inches and 11 feet 6 inches by 14 feet 6 inches in the two classes of tenements, respectively. Bedrooms vary from 11 feet 6 inches by 10 feet 6 inches to 10 feet 6 inches by 7 feet 6 inches.

The cost of this property was $1,610 for the lot and $3,000 for the building. It was built in 1883. The rental of all the tenements, four-room as well as five-room, is $2.12 per week, and is deducted from the earnings of the tenant.

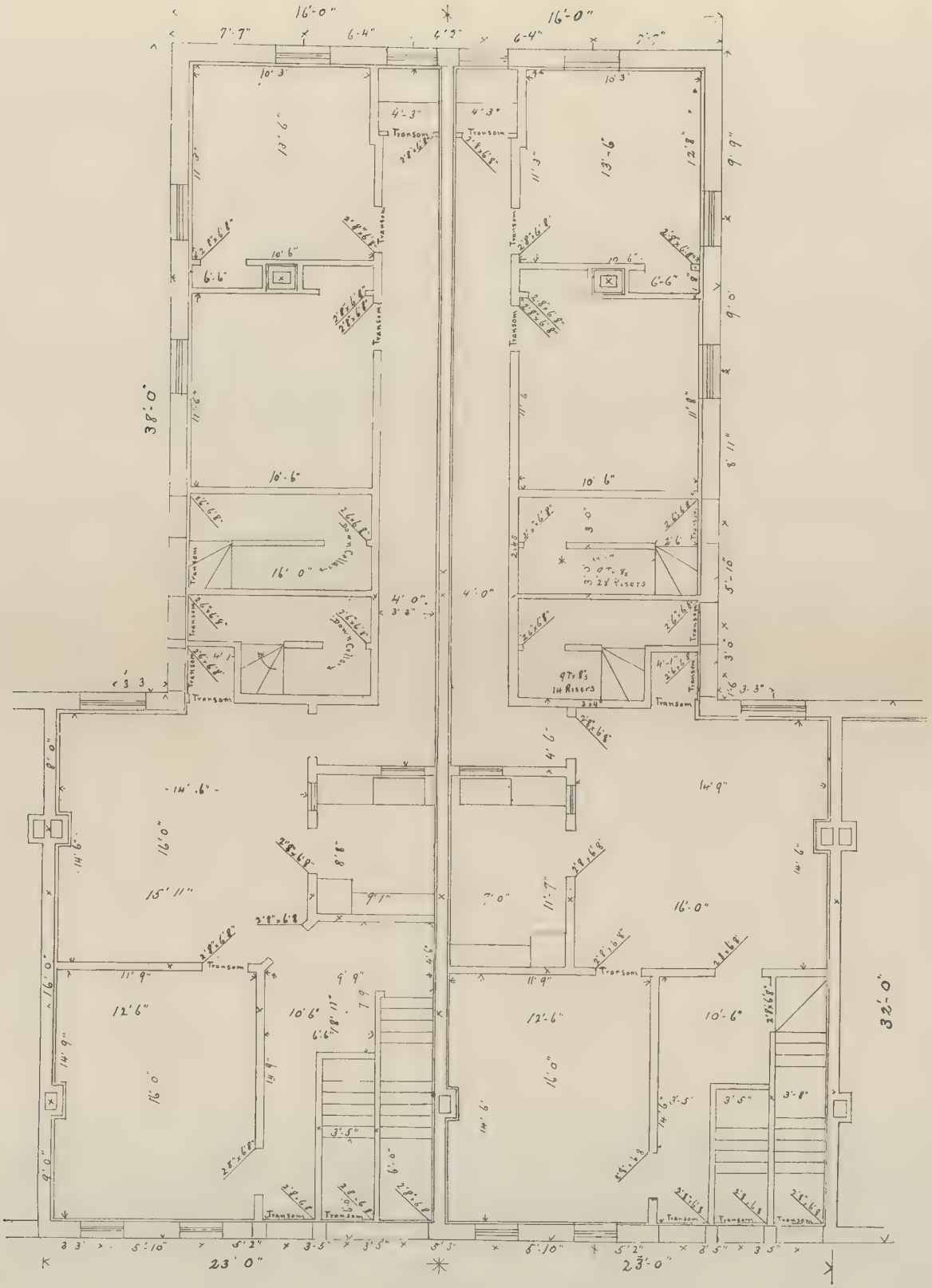
Almost since its foundation this corporation has been engaged in the provision of model housing. It owns 206 buildings, which contain 8 four-room tenements, 65 five-room tenements, 93 six-room tenements, and 40 ten-room tenements. The total estimated value of lands and model tenement buildings now owned by this corporation is $664,550. In round numbers $27,000 represents the annual rent roll. The average annual net profit on fiscal operations has been about 2.3 per cent,



Front elevation.

HOUSES OF THE MERRIMAC MANUFACTURING COMPANY, LOWELL, MASSACHUSETTS.

PLAN NO. 56 A.



First floor.

HOUSES OF THE MERRIMAC MANUFACTURING COMPANY, LOWELL, MASSACHUSETTS.

PLAN NO. 56 B.

the corporation estimates, without deducting repairs. The taxes amount to about $10,898.62 annually, and are paid by the corporation. The percentage of unoccupied tenements is so slight that it is not taken into account.

The tenements are rented only to employees of the corporation. Whenever a tenant leaves the employment of the corporation he is allowed two or three weeks in which to vacate the premises. Formal notification is served upon such parties.

Rentals are never changed unless there are variations in tax rates, and then only in proportion to the advance or decline of the latter. In the later constructed houses rents have been estimated at about 15 to 20 per cent lower than for similar accommodation in the neighborhood. It is estimated that 20 per cent of the earnings of the heads of families goes for rent. Tenants may sublet or receive boarders, but only such as are employees of the corporation. The following notice displays the attitude of the corporation relative to this question:

MERRIMAC MANUFACTURING COMPANY.

Office of the agent.

Knowing that parties are rooming in houses owned by this company who are not employed in the mills of this corporation, you are hereby notified to send away any such parties at once, if you have any in your house. This rule is to be strictly enforced, and any tenant violating the same will receive notice to quit.

———, *Agent.*

LOWELL, ——, 18—.

This corporation has boarding houses also. These are rented, the company fixing the rates of board which may be charged. When the mills first opened the population of Lowell was quite small, and it was necessary to provide for the boarding of employees, especially women who came from the neighboring country. The company consequently erected boarding houses. As the town grew there was less of a demand for such places, but those existing are even now well patronized. The rates charged are very moderate. The girls pay $1.75 per week, and the company supplements this by 30 cents in each case where the operative boards at one of its houses. In this way the corporation pays out $3,000 a year in bounties. Day boarders may also be received at such places.

The company hardly expects to extend its housing activities. Though the tangible financial returns have been small, it is not felt that money has been lost in the enterprise; rather have the results been profitable to the company, since the value of a well housed and well contented working force, as compared with the opposite, is beyond estimate.

ROBERT TREAT PAINE, BOSTON, MASSACHUSETTS.

Mr. Robert Treat Paine, of Boston, is a pioneer among those Americans who have interested themselves in improving housing conditions. He began building about twenty years ago, and about ten years since erected forty-five small dwellings, each house being adapted for a single family. Some have four, some five, and some six rooms, besides a bathroom arranged for hot and cold water and a water-closet. All have cellars. The selling price of the houses varied from $2,000 to $3,500. The terms of payment were made so easy that all charges, including interest on mortgage, taxes, water rates, and insurance, would amount to from $130 to $214 a year. A cash payment, varying from $300 to $500 was required. It was calculated that in twelve years' time the tenant would come into the possession of his home by paying no more than he would pay as rent. Mr. Paine has a decided preference for the individual home as compared with large tenements. A second group of eighteen houses was finished in May, 1888, a third of seventeen houses in October, 1888, and a fourth of nine houses in October, 1890. A total of 101 houses have been built and sold at stated prices. The land cost from 60 to 75 cents per square foot.

Mr. Paine is the president of the Workingmen's Building Association, which was founded in 1888 and has been remarkably successful. Dividends were limited to 6 per cent, everything beyond going to the reserve fund or for additional improvements. Houses so far built vary in price from $2,500 to $6,500, without the land. Purchasers are usually of the better class of artisans, such as plumbers, carpenters, masons, engineers, etc. There is also a considerable number of railway and city employees. The association buys up large tracts of land, and after improving them sells individual houses and ground either on installments or for cash. The buildings are sold at actual cost price. Whatever profits are made come from the land, which is bought at wholesale and sold at retail, so to speak. There are no limitations in the contracts of sale, titles being perfectly clear. The capital is reinvested from time to time. No money has been borrowed.

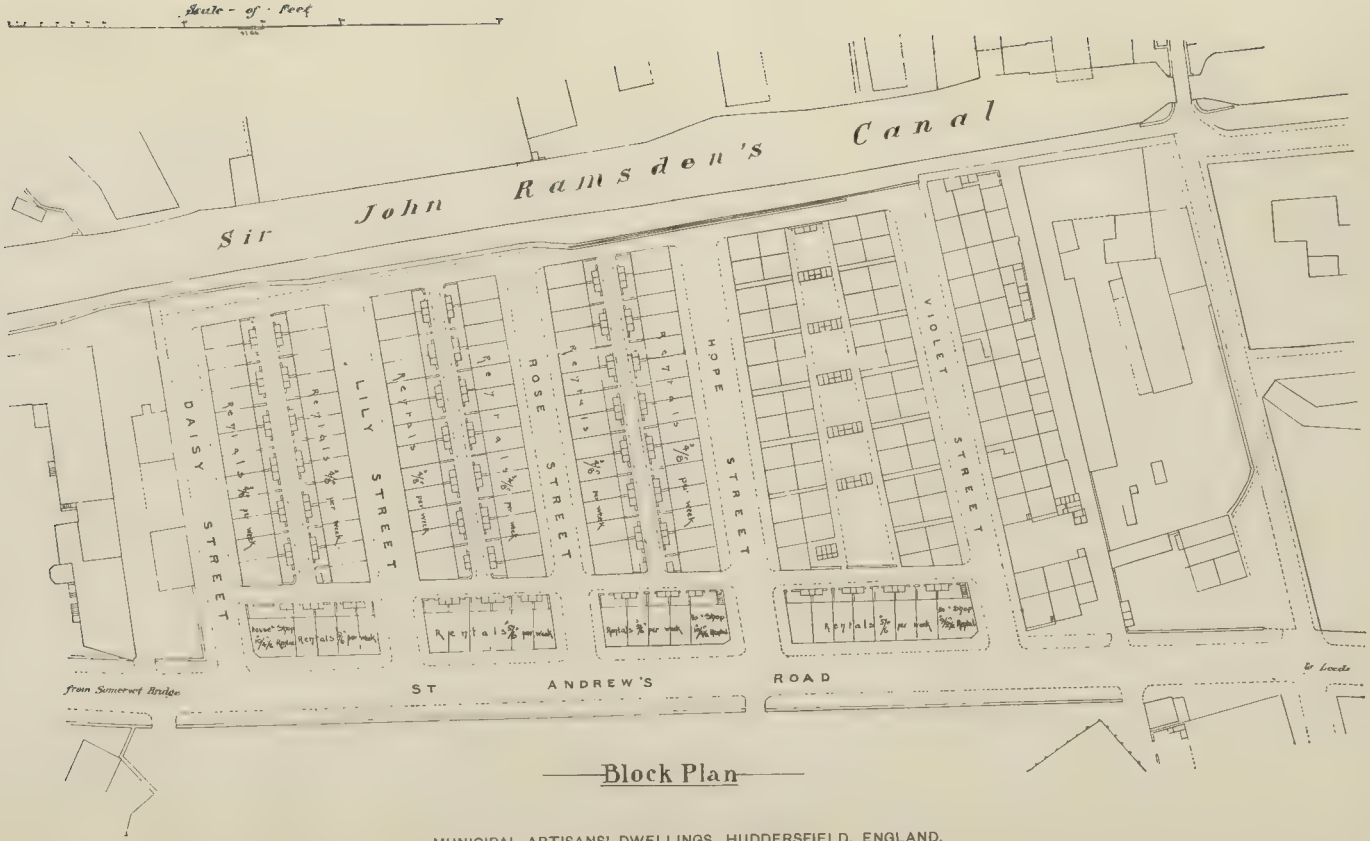
In addition to these enterprises just mentioned, Mr. Paine is also connected as a stockholder with the Boston Cooperative Building Company, which is the largest of all the model housing agencies in that city.

GREAT BRITAIN.

MUNICIPAL ARTISANS' DWELLINGS, HUDDERSFIELD, ENGLAND.

The houses built and managed by the corporation of Huddersfield are small and situated contiguously in blocks fronting on several streets, as shown in the accompanying block plan (plan No. 57 A).

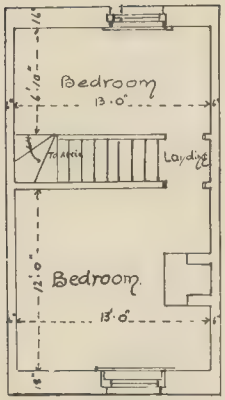
About one-third of the whole ground space, if private streets be included, has been built upon. The sidewalks are of concrete and the streets are paved with stone. A typical house has a frontage of about



Block Plan

MUNICIPAL ARTISANS' DWELLINGS, HUDDERSFIELD, ENGLAND.

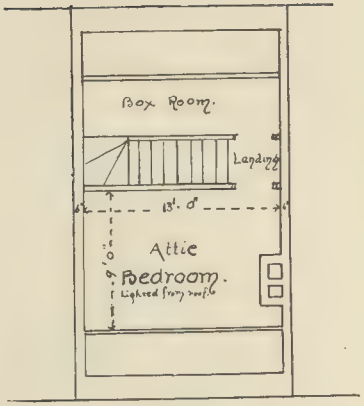
PLAN NO. 57 A.



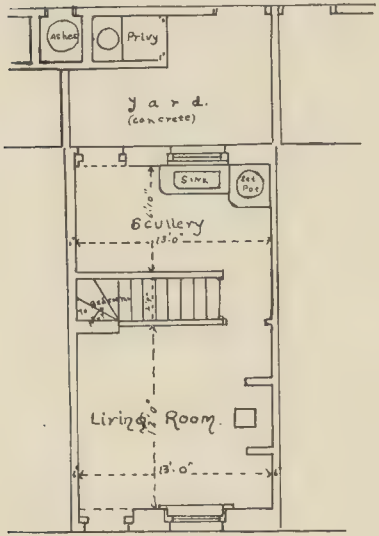
Bedroom plan.



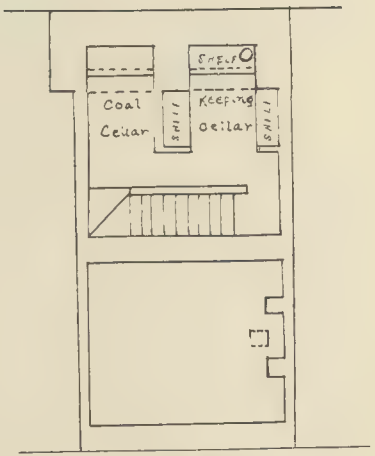
Front elevation.



Attic plan.



Ground plan.



Cellar plan.

MUNICIPAL ARTISANS' DWELLINGS. HUDDERSFIELD. ENGLAND.

PLAN NO. 57 B.

13 feet 6 inches, with a depth of 25 feet. The open space is in the form of a small paved court at the rear, which is concreted and separated by low brick walls from the neighboring courts. The house contains two stories and an attic. It is built of stone, the exterior walls being 16 inches thick. While not absolutely fireproof, there is little about it which is inflammable. The stairway is of stone and the roof of slate. The house has a cellar, well ventilated by a glass-covered opening under the sidewalk, which also serves as a coal shoot. Brick walls divide the cellar into coal and storage compartments, and in the latter there are shelves for provisions. The cellar floor is flagged. The house shelters but a single family, so that there is only one street entrance. Ventilation is accomplished by doors and windows in the front and rear. The sewerage system is very good. Waste water is conducted to trapped pipes in the private streets, and these empty into the main sewer. The ground slopes gently, giving good facilities for drainage. An unlimited supply of water is allowed.

A brick outhouse at the back of the court contains the water-closet and dust box. The latter is reached from the outside of the court, so as to prevent ashes from falling into the court and giving it an unsightly appearance and as a measure of convenience in hauling them away. Six persons, on an average, use a single water-closet. Washing is done in the scullery, where a boiler is embedded in a brick furnace. An escape pipe is placed over the boiler to conduct the steam to the chimney. The living room has a concrete floor, and all other rooms have wooden floors. The scullery is paved with large stone flags supported on wooden beams. A range in the living room and an open grate in the large bedroom are used for heating purposes. The range has compartments for cooking and baking, as well as a boiler. The grate has an opening in the floor containing a tin box for catching ashes. The ashes fall through a sieve, but the cinders are retained. Economy of fuel is the motive for this accessory. The exterior of the building is very plain, and interior decorations have not been aimed at. A plan of the house, with front elevation, is given (plan No. 57 B).

This particular type of house has five rooms—a scullery 13 feet by 6 feet 10 inches, a living room 13 feet by 12 feet, two bedrooms in the second story 13 feet by 12 feet and 13 feet by 6 feet 10 inches, respectively, and a third bedroom in the attic 13 feet by 9 feet. The ceiling in the first story is 9 feet 6 inches, in the second story 9 feet, and in the attic 7 feet over half the area. The house rents for 4s. 8d. ($1.14) weekly. The probable rent for similar accommodation in the city would be 5s. ($1.22) per week. The earnings of the head of a family occupying this type of house are in the neighborhood of 24s. ($5.84) per week, while those of the family as a whole would raise the budget of income fully 80 per cent.

There are 157 houses in the group which belongs to the corporation of Huddersfield. Ninety-eight are separate model five-room houses, while 59 are remodeled back-to-back buildings, containing three rooms each. The model houses were constructed in 1882. The land was leased at 4d. (8 cents) per square yard. The cost of the houses was £28,944 14s. 11d. ($140,859.61). The rents of these houses are—1 at 3s. 4d. (81 cents) per week, 14 at 3s. 7d. (87 cents), 1 at 3s. 10d. (93 cents), 25 at 4s. 1d. (99 cents), 1 at 4s. 5d. ($1.07), 92 at 4s. 8d. ($1.14), 19 at 5s. 6d. ($1.34), 1 at 6s. ($1.46), 1 house and store at 9s. 2½d. ($2.24), and 2 houses with stores at 10s. 4½d. ($2.52). The total sum received for rental during the fiscal year ending March 31, 1892, was £1,939 3s. ($9,436.87). The following table shows the receipts and expenditures for the corporation dwellings since the enterprise was begun in 1882:

INCOME AND EXPENDITURE OF HUDDERSFIELD, ENGLAND, ON ACCOUNT OF ITS ARTISANS' DWELLINGS.

Year ending—	Income.	Expenditure.	Surplus.	Deficit.
August, 1882	$3,414.13	$1,623.06	$1,791.07	
August, 1883	7,260.94	7,986.09		$725.15
August, 1884	8,508.22	8,656.61		148.39
August, 1885	9,038.83	9,192.55		153.72
August, 1886	9,283.64	9,410.47		126.83
August, 1887	9,274.76	9,354.69		79.93
August, 1888	9,275.18	9,089.16	186.02	
August, 1889	9,257.93	9,092.06	165.87	
March, 1890 (seven months) *a*	5,358.73	5,168.37	190.36	
March, 1891	9,273.50	9,265.00	8.50	
March, 1892	9,436.87	9,236.64	200.23	
Total	89,382.73	88,074.70	2,542 05	1,234.02
Balance			1,308.03	

a Changed date of end of fiscal year.

Under the term expenses is included ground rent, maintenance and repairs, interest, sinking fund, taxes, etc.

FIFTY-THREE WEEKS, ENDING MARCH 31, 1892.

Rents received	$9,436.87
Expenses:	
Local rates	1,046.60
Ground rent	925.24
Water rate	565.25
Property tax	183.83
Joining, painting, and sundry repairs	705.22
Interest on capital and sinking fund	5,810.50
Total	9,236.64

One-half of 1 per cent of the income goes annually to the sinking fund. The average annual net profit on the fiscal operations since the enterprise began has been 4 per cent. Money has been borrowed at from 3 to 3½ per cent. The enterprise is municipal, and the corporation credit enables it to obtain money at a low figure. The local rates and property and water tax amount to about 9 per cent of the rent. But £2 14s. 9d. ($13.32) were lost from unoccupied houses during the year

ending July, 1892. Tenants are not permitted to become proprietors. Rents are paid weekly when accrued. They are called for by an authorized agent of the corporation. As a rule a month's arrearages would be allowed before ejectment took place. The sum of 10s. ($2.43) was lost from nonpayment of arrears during the year ending July, 1892. A tenant must give one week's notice of intention to quit. It takes about five or six weeks, however, to get tenants out if they choose to resist. Rents have been advanced about 5d. (10 cents) per week after one year's notice. The reason was that the former figures were found not to have been high enough. The occupations and earnings of heads of tenant families appear in the subjoined table:

OCCUPATIONS AND EARNINGS OF HEADS OF FAMILIES IN MUNICIPAL ARTISANS' DWELLINGS, HUDDERSFIED, ENGLAND.

Occupation.	Number.	Average weekly earnings.	Occupation.	Number.	Average weekly earnings.
Laborers	26	$7.30	Spinners, weavers, dyers, and finishers	88	$5.84
Letter carriers	5	5.35	Teamsters	10	$4.38 to 5.35
Mechanics	4	7.79	Not specified (widows)	20	
Policemen	5	5.84			

It is considered that 19 per cent of the earnings of the heads of families goes for rent. The average duration of tenancy has been three years during the last quinquennial period. Tenants are required to make good all damage to the property beyond ordinary wear and tear, and the houses can be used only as private dwellings. Tenants are not permitted to sublet unless specially authorized by the corporation. They may receive boarders in the same way only. No special form of application is required from prospective tenants.

Tenants, as a rule, live within walking distance from their places of employment. No such accessories as baths, laundries, libraries, reading rooms, or halls for entertainment have been provided in connection with this group of dwellings. There is scarcely any variation in the architectural features, so that on the whole the æsthetic side has been somewhat neglected.

LEVER BROTHERS, BIRKENHEAD, ENGLAND.

This firm has adopted a novel method of profit sharing. It applies the money which would in an ordinary profit sharing scheme form the workingmen's share of the profits to the construction of houses which are rented to employees, preference being given to those who have been longest in the establishment. At the end of the first year of tenancy the rent is reduced 30 per cent, at the end of the third year another 30 per cent, and at the end of the fifth year a third 30 per cent. The remaining 10 per cent continues to be paid in order to meet the expenses of maintenance and repairs. A large number of really good dwellings have thus been built.

JAMES SMIETON AND SONS, CARNOUSTIE, SCOTLAND.

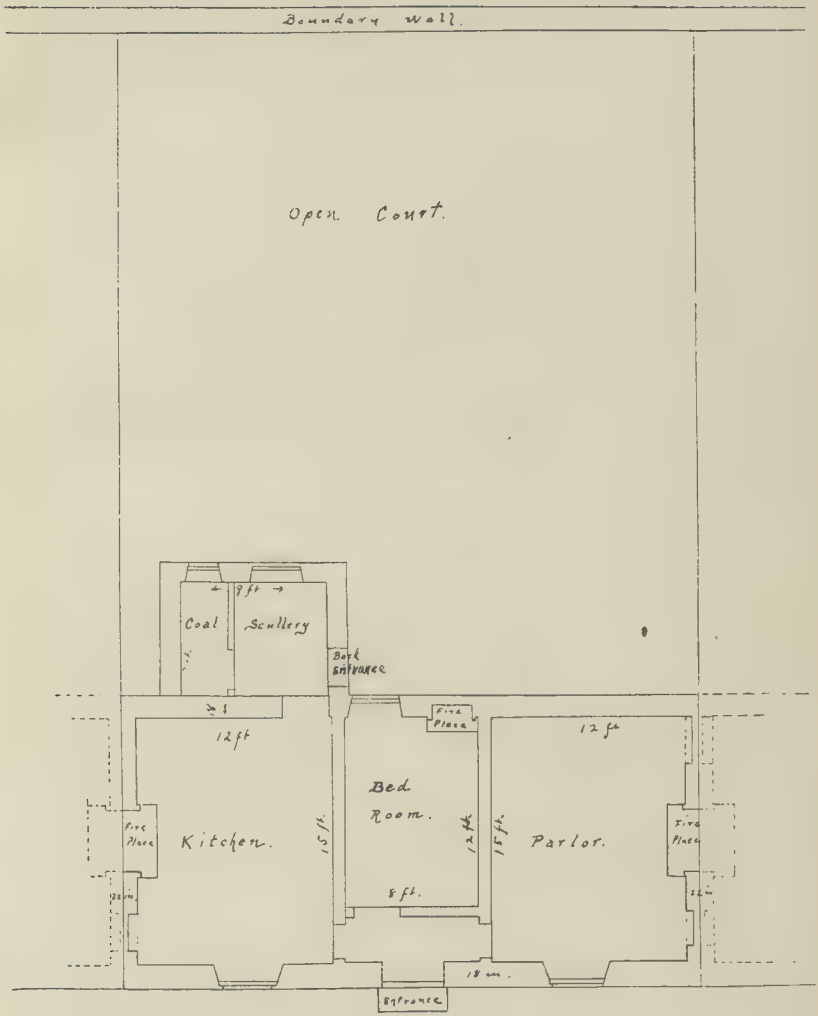
The model dwellings of Messrs. James Smieton and Sons, jute manufacturers, are situated at Carnoustie, not far from Dundee. The frontage of a lot is 35 feet and the depth 58 feet. Six hundred and eighty-seven square feet have been built upon, leaving two-thirds of the lot free. The open space is situated in the rear of the house and is used as a lawn. In addition to this space about 1,500 square feet have been set aside for each family, either adjoining the house or in the vicinity, to be used as a garden for vegetables, flowers, etc. No extra charge is made for this.

The dwellings are one story in height and are constructed of stone. The exterior walls are 18 inches thick. Stone walls separate the buildings, and when a fire breaks out in one of them the roofing is cut and the spread of the fire prevented. There are no cellars to the houses, but a space is left between the ground and the floor to permit ventilation, and ventilators that may be opened or closed at will are fixed in the walls outside. There is but one street entrance to each house.

One privy situated in the back of the court serves for four houses and is used by fully sixteen persons. The bottom of the reservoir is inclined and connects by means of conduits with the main sewer in the street, so that all liquid matter runs off at once. The reservoirs are cleaned out at frequent intervals. Recently water pipes have been laid in the streets and steps are being taken to replace the privies with water-closets. In a few houses water-closets, provided with the latest improved system of flush-out, are used. The privies and water-closets are well ventilated by pipes communicating with the air above. There is no water inside the houses. Hydrants are placed outside and one serves for three or four houses. Sinks provided with traps are under the hydrants and communicate directly with the main sewer in the street.

For laundry purposes tanks are provided for receiving rain water; one tank serves one or two families. An unlimited supply of water exists for the use of tenants. Coal is used for heating. A cooking range is constructed in the fireplace of each kitchen and a grate in each bedroom. These are provided and kept in repair by the proprietor. All additional appliances, such as boilers, ovens, etc., must be furnished by the tenants themselves. Gas is used for lighting. Fuel storage is provided in an outhouse, and as regards garbage, three or four families use the same receptacle, which is in the back yard. The refuse is removed by the town authorities once every week.

A wall cupboard, serving as a pantry, has been placed in each kitchen and every bedroom has a clothespress. Gas brackets are furnished by the proprietors, but burners must be provided by tenants. The buildings present a plain appearance from the outside. The rooms have been papered by tenants. A floor plan of one of these dwellings is given (plan No. 58).



JAMES SMIETON AND SONS, CARNOUSTIE, SCOTLAND.

PLAN NO. 58.

Kitchens are 15 feet by 12 feet, bedrooms 12 feet by 8 feet, and parlors 15 feet by 12 feet. Ceilings are 9 feet high.

The annual earnings of the head of the family whose house was chosen for description was £54 ($262.79), and of the family as a whole £91 ($442.85). The occupation of the tenant was cloth finishing. The annual rental paid, including taxes of all kinds, was £7 11s. 8d. ($36.90). The probable rent for a similar lodging in the vicinity would be £10 10s. ($51.10).

The land is not owned in fee, but what is known in Scotland as a feu duty or ground rent of 8s. ($1.95) is paid on each lot The original cost of the dwelling, ready for habitation, was £125 ($608.31).

The first of these model dwellings was opened in 1858. There are now 89 in the group. Eleven of these contain one room, 6 two rooms, 70 three rooms, and 2 four rooms. The annual feu duty on the land on which the group has been constructed is £52 4s. ($254.03). The original cost of the group of houses was £10,600 ($51,584.90). The total annual rental, as shown by the latest returns, was £518 ($2,520.85). Tenants are not permitted to become proprietors. The dwellings are intended for the use of employees, and selling them would result in complications should the owners leave the employment of the firm.

The housing accounts of this firm are not separated from the general manufacturing accounts; consequently it is impossible to give the exact net profit which has resulted from this line of investment. The firm, however, estimates that it has been fully 3 per cent.

The taxes are divided between landlord and tenant. In the rentals quoted previously the proportion due by the tenant was included. The following table presents the figures:

TAXES ON HOUSES OF JAMES SMIETON AND SONS, CARNOUSTIE, SCOTLAND.

Name of tax.	Total.	Average per house.
Drainage tax	$55.60	$0.62
Water tax	111.20	1.25
Police purposes	64.85	.73
Poor rates	59.37	.67
Registration	3.71	.04
School rates	70.50	.79
County and consolidated rates	102.20	1.15
Property and income rates	55.60	.62

None of these taxes have a particular tendency, in the opinion of the proprietors, to retard the erection of model dwellings.

There was nothing lost from unoccupied lodgings during the year for which returns were available, as all were occupied. All rents are deducted each week from wages; consequently no loss ensues from nonpayment. The tenant is allowed to remain one week in arrears at a time. One week's notice of termination of tenancy is required, both from the landlord and from the tenant. There is no clause in the lease giving to the proprietors the right of summary ejectment in case the tenant

goes on strike. Rents have advanced during the last ten years 3 per cent. The cause was a rise in the taxation. There are 76 factory workers among the tenants, with average annual earnings of £63 ($306.59) each; 8 bootmakers, each averaging £66 ($321.19); 3 chemical workers, each averaging £52 ($253.06); and 2 shopkeepers, whose remuneration is not known. About 12 per cent of the earnings of tenants, on the average, goes for rent. Removals are so rare that duration of tenancy has never been statistically set forth. Tenants may sublet any part of their lodgings or receive boarders. No formal contract is entered into. The death rate among children under 1 year of age was, for the whole group, 2 per 1,000, and the same for all occupants. The average death rate for the whole town was 17 per 1,000. There were 7 births in the model dwellings during the year 1892, all of which were legitimate. There were no criminal convictions among the inhabitants of this group of houses. The tenants are situated less than half a mile from the factory.

In connection with the model dwellings there has been constructed a "people's palace," containing a reading room, free library, large entertainment hall, billiard room, sitting and cloak rooms, a piano, organ, and other furniture. The original cost of this social annex was £1,756 ($8,545.57). The expense of maintenance is about £32 ($155.73) per year. Nothing is charged for using these institutions, but members contribute equally with the proprietors for daily papers and periodicals in the reading room. The average number of persons making use of these annexes is about 260. The people's palace was opened December 29, 1865. The hall seats about 600, and the library contains 1,300 volumes. The reading room is supplied with six daily papers, five weekly papers, and two periodicals. There is also a penny savings bank connected with the institution, which in 1891 showed a balance credited to depositors of £105 12s. 5d. ($514). Deposits are limited to employees of the works, and sums from 1d. (2 cents) to £1 ($4.87) only may be received. Whenever the sum reaches an excess of £1 ($4.87) a transfer is made to the post office savings bank, where interest is paid. Interest is not allowed on deposits with the penny savings bank.

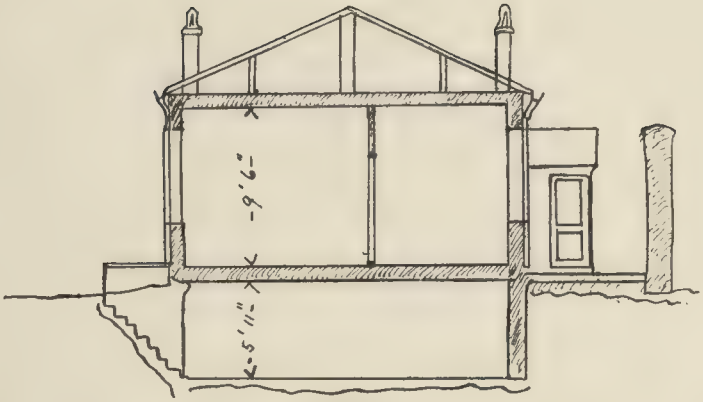
Some of the older buildings, and especially those containing one and two room tenements, have two stories, and are arranged somewhat like tenement houses. The one-room tenements are used exclusively by single women employed in the factory, and have entrances on the side of the building opposite to those of the two-room tenements, so that none of the men ever have occasion to go near the single women's apartments. In all cases where it is practicable the model dwellings are built to house one family each, as it is considered more agreeable to the tenants.

PILRIG MODEL DWELLINGS, EDINBURGH, SCOTLAND.

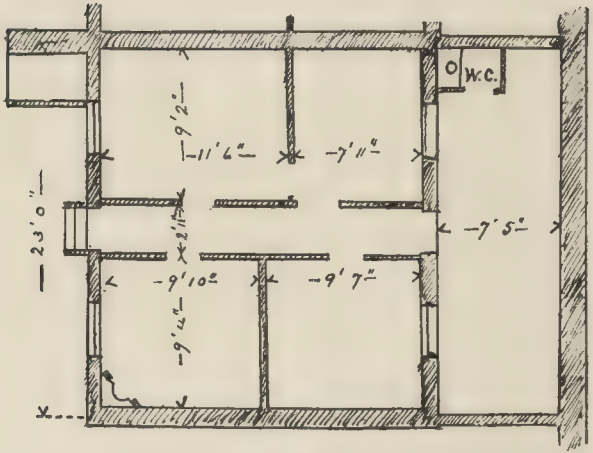
These buildings are pioneers among the improved dwellings of the Scottish capital, having been erected about 1850 by Sir James Gowan.



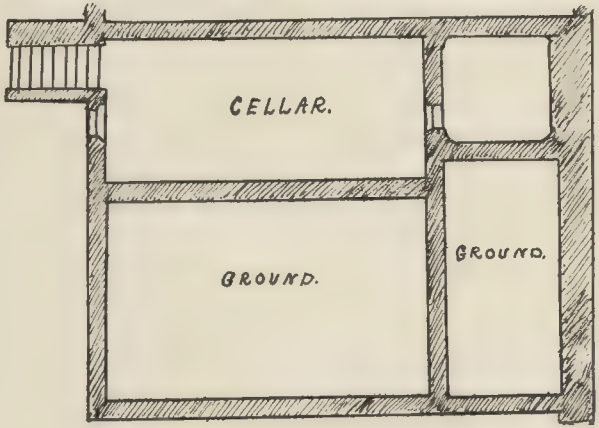
Front elevation.



Section.



Ground floor.



Cellar

WORKINGMEN'S DWELLINGS COMPANY OF PASSY-AUTEUIL, PARIS, FRANCE.

PLAN NO. 59.

There are sixty-two contiguous dwelling houses, built of stone and two stories in height, the entrance to the upper tenements being in the rear, and to those on the ground floor in the front. Each tenement is self-contained and has a garden spot 24 feet deep opposite its entrance, the rear garden being in every sense as attractive as that situated in front. In each tenement there is a sitting room 12 feet by 12 feet, one bedroom 12 feet by 6 feet, and another 12 feet by 8 feet. There is also a kitchen 12 feet by 12 feet and across the hall a scullery with place for coal and storage. Ceilings are 9 feet high. The rent per tenement varies from £5 5s. ($25.55) to £9 15s. ($47.45) per annum. A dividend of 5 per cent has been generally paid and a small balance left to the sinking fund.

FRANCE.

WORKINGMEN'S DWELLINGS COMPANY OF PASSY-AUTEUIL, PARIS.

This organization was founded for the purpose of aiding workingmen to become owners of houses. It limits its dividends to 4 per cent. Tenants become proprietors in twenty years, through a series of annual payments. The company has erected 64 separate houses. Drinking places are prohibited. Houses vary in value from 6,000 to 11,000 francs ($1,158 to $2,123). A cooperative association has been formed among the dwellers, which now has 400 members. Supplies from the cooperative stores are secured at reduced prices. The Villa Mulhouse, which is the name given to the property of this company, is situated in the midst of an elegant and aristocratic quarter, in the neighborhood of large houses and well-kept gardens. M. Jules Seigfried, late minister of commerce, is the president, and M. Émile Cacheux was the architect. The plan of a house fairly similar to the one to be described is given (plan No. 59).

The house chosen for description has a frontage of 23 feet on a lot with a total superficial area of 979 square feet. About 54 per cent of the space has been built upon, leaving room for a garden in front and a small courtyard in the rear. The house has but one story, is built of brick, and contains a cellar with gravel floor. The water-closet is situated on the outside, and all refuse matter is carried directly to the public sewer. There is through circulation from front to rear. A waste pipe and all hygienic requirements have been considered in the plumbing. There is an unlimited supply of city water. Oil or gas, as the tenant prefers, is used for lighting. A cooking range in the kitchen and three fireplaces in other rooms furnish heat. Fuel is stored in the cellar. A garbage receptacle, composed of a tin ash bin, is provided, and is emptied every morning. At the request of the tenant the gas company will, without charge, run gas pipes into the house and furnish a cooking stove and one gas bracket. Three mirrors have been put in the house. There are also iron Persian window shutters. Bricks of different colors have been used in building the house, and the

external appearance is pleasing. The house has four rooms, a dining room 14 feet 9 inches by 9 feet 5½ inches, two bedrooms 10 feet 6 inches by 10 feet 2½ inches each, and a kitchen 6 feet 3½ inches by 9 feet 5½ inches. There is a hallway 21 feet 4 inches by 3 feet The ceilings are 9 feet high. The annual rental paid is 300 francs ($57.90), while the probable rent of similar accommodation in the vicinity would be 450 francs ($86.85) per annum. The original cost of land for this house was 1,365 francs ($263.45), and of the house itself 4,000 francs ($772). The first model dwelling house belonging to the company was opened for habitation in 1882.

Tenants are encouraged to become proprietors; in fact, the original idea was to permit occupancy only to intending purchasers. After a while, however, tenants were admitted purely as rent payers, with the hope that their surroundings would stimulate them to purchase. Whenever they did not do so they were informed that the houses were needed for other people and were obliged to move out. Forty-one houses have been sold upon monthly payments which represent 8.3 per cent annually upon the cost. The period of payment runs twenty years. Four per cent is the value of rent, and 4.3 per cent represents the cost of administration, installments of purchase money, etc. The sum of 500 francs ($96.50) is required as an initial cash payment. Restrictions in the deed of sale cover prohibition from selling or leasing the property for ten years without the company's consent and refusal of the privilege of maintaining stores or saloons. In case of resale the company has the option of the purchase. The total amount of share capital is 200,000 francs ($38,600). The shares have mainly been subscribed by philanthropically disposed persons. Dividends are limited to 4 per cent, but so far 2½ per cent per annum is the highest sum which has been paid.

Rents or installments, as the case may be, are paid quarterly when accrued. The company is protected by the deposit upon entry. Rents are called for when due by the company's regular agent. In case of accidental inability to pay a long delay is permitted, but in other cases tenants are not allowed to remain in arrears. A tenant may apply to the agent for the revocation of his contract of sale, but the company complies with or refuses his request, according to its discretion.

Subletting or taking boarders is not permitted. As shown by the latest returns the death rate among occupants of the group of model dwellings was 15 per 1,000. For the *arrondissement* in which it is situated it was 21.9 per 1,000, and for the whole city of Paris 23 per 1,000.

Means of communication with places of work are furnished by a tramway line, three omnibus lines, boats on the Seine, the belt railway, and another suburban railway. Fairly well-to-do workers and clerks compose the majority of inhabitants.

DISCOUNT BANK OF PARIS, PARIS.

In the highest and healthiest quarter of Paris the Discount Bank (*Banque d'Escompte*) opened for habitation July 1, 1890, 380 model dwelling houses. The cost of the houses, not including land, was 6,000 francs ($1,158) each and upward. Tenants are permitted to become proprietors, making annual payments, with an advance to cover taxes. Four and one-half to 6 per cent interest has thus been provided for by the plan. Rents are paid quarterly when accrued, and are collected by an authorized agent of the proprietor. The greatest forbearance is exercised in case of arrearages. The buildings are of several types. Tenants are mainly employees of the different branches of the civil service, where the head of the family earns from 2,200 to 3,600 francs ($424.60 to $694.80) per annum. Adding the earnings of other members of the family, the total budget of receipts would rise to from 3,400 to 4,800 francs ($656.20 to $926.40).

HAVRE WORKINGMEN'S DWELLINGS COMPANY, HAVRE.

A typical house of this company (Société Havraise des Cités Ouvrières) is built of brick, on a lot of 25 feet 3 inches frontage and 50 feet 6 inches depth. About one-third of the lot is built upon, the remainder being largely utilized for garden purposes. A low brick wall separates each property from the adjoining one. The front wall is surmounted in all cases by a railing of iron or a wooden lattice constructed by the tenant at his own expense. A gutter of brick extends along the side of the house. Pathways are paved or covered with gravel at the expense of the tenant. The kitchen is paved with bricks, but the other floors are of wood. Cellar joists are of iron. Inner walls separating the rooms are lightly constructed of mortar. The house has windows in front and rear, so that through ventilation is secured. A privy is placed in the back of the court. The tub system is in use, and the tubs are emptied at the tenant's expense. Waste water runs off in gutters to sewers outside the colony. No range has been put in the kitchen, but a fireplace serves the purpose. Washing is done in a shed which adjoins the privy. The external appearance of the house is quite plain, the only decoration being shutters to the front windows. The kitchen is 16 feet 9 inches by 10 feet 10 inches; there is one bedroom of the same size, and two others 9 feet 6 inches by 8 feet 6 inches, respectively. The rental paid is 430 francs ($82.99) per year. The rents charged include payments made toward acquiring the house. They are calculated on a basis of 10 per cent of the cost price. The house becomes the property of the occupant in about fourteen years. The value of the land is calculated at 825 francs ($159.23), and of the house at 4,400 francs ($849.20).

This company commenced operations in 1871, and has now 117 houses in the group. The land was bought very cheap, at 4 francs (77 cents) per square meter (10.764 square feet). It is now worth

15 francs ($2.90) per square meter, though when sales take place but 7.50 francs ($1.45) is charged. Four per cent interest is reckoned in payment for houses on the installment plan. The occupant is not privileged to sell the house during his first ten years of occupancy. He is restricted from conducting a liquor business, and he can not build on the garden space nor add another story.

The capital stock of the company is 200,000 francs ($38,600). It was mainly raised from subscriptions, though the city gave a subsidy of 25,000 francs ($4,825). Four per cent dividend is paid, and there is a reserve of 16,000 francs ($3,088). On December 31, 1892, the sum of 114,337.29 francs ($22,067.10) was in the hands of the company ready for reinvestment. This was money paid in by the holders of the houses. The sum of 96,779 francs ($18,678.35) was still due. Seventy-five houses had been fully paid for, forty were in process of liquidation, and two were not sold. The cost of houses varies from 4,400 to 4,990 francs ($849.20 to $963.07), and with the lot at 7.50 francs ($1.45) per square meter, the total cost becomes 5,012 to 5,883 francs ($967.32 to $1,135.42). The land tax amounts to from 34 to 42 francs ($6.56 to $8.11) annually per house. The tax on doors and windows is 18 francs ($3.47), and the personal contribution of tenants is 4.55 francs (88 cents). When a tenant takes a house on the purchase plan he pays from 300 to 500 francs ($57.90 to $96.50) deposit. In default of two consecutive terms of payment the property may be sold. Metal workers and foremen constitute the occupations of a majority of the inhabitants. The former earn from 5 to 6 francs (97 cents to $1.16) per day, and the latter from 5 to 10 francs (97 cents to $1.93) per day. In Havre about 15 per cent of the earnings of heads of families is said to go for rent. Most of the tenants are situated within a mile of their places of employment.

THE COTTAGE, LYONS.

The establishment of this organization is associated with the work of the Cooperative Consumers' Association, founded at Lyons in March, 1889, under the name of — Union of Employees of the Paris, Lyons and Mediterranean Railway Company. The organization of the latter was due chiefly to M. Marescot, assistant cashier of the railway company. The union has been a great success, and numbers about 20,000 members. M. Marescot, during a visit to the Paris Exposition of 1889, was much struck with the plans for workingmen's homes which he saw there, and determined to ascertain what could be done at Oullins, a suburb of Lyons and an important manufacturing center, where the engine and car shops of the railway company were established. The suburb has a total population of 8,000, and there are 2,000 men in the service of the railway company. Considerable difficulty was found in obtaining the necessary capital to make a commencement. After a contractor had undertaken the work and built a few houses as an

experiment he refused to go further. An appeal was then made to the Société Française des Habitations à Bon Marché, whose avowed function is to encourage any incipient enterprise, and after failing to negotiate with the Cheap Dwellings Company of Lyons and the railway corporation, a private capitalist, M. Chaurand, came forward with an offer of the necessary funds to carry on the work.

The association was established under the name of "The Cottage," with a capital of 150,000 francs ($28,950), and dividends were limited to 5 per cent. The object of the association is declared to be to assist workingmen by constructing, by aiding in constructing, or by acquiring healthy and convenient dwellings to be rented or sold at moderate prices and with the privilege of payment on the installment plan.

Land was acquired, upon which sixty houses were erected, and the first dwelling was opened for habitation in 1891. There are two types of houses at present. The first type consists of three rooms, a cellar, a loft, and a garden space of about 1,076 square feet. The cost of each house was 3,200 francs ($617.60), and the monthly payment is 24 francs ($4.63), the property being acquired in fifteen years. The other type consists of four rooms, a cellar, a loft, and a garden of the same dimensions as that connected with the preceding house. It costs 3,500 francs ($675.50). The monthly payment is 26 francs ($5.02), while the period for acquisition is lengthened to sixteen years and five months. In each case there is but a single story with a loft. Existing houses are occupied largely by employees of the railway company, and earning generally from 5 to 10 francs (97 cents to $1.93) per day. The kitchens are 13 feet 5 inches by 9 feet 10 inches, with an alcove 5 feet 3 inches by 9 feet 10 inches, and the bedrooms 9 feet 4 inches by 13 feet 9 inches and 10 feet 6 inches, respectively. The ceilings are 9 feet 10 inches high. Five per cent has been realized on the fiscal operations of the society. An option on land capable of accommodating 100 houses has been secured, and the organization seems to have before it a prosperous future.

The contract between the company and occupiers is simply a lease, with an agreement to sell when a fixed sum shall have been paid by the tenant. The installment payments are made each month in advance and include the rent and an additional sum toward acquisition. The payments altogether are estimated at 10 per cent per annum of the cost of the property. Additional payments may be made in sums of not less than 20 francs ($3.86). An open account exists for each tenant, he being debited with the value of the property and all other sums which he should pay. He is credited with any sum deposited as a guarantee on entering into the contract, his monthly installments, and all sums paid in addition. The account is made up twice a year, and interest is charged on the new balance at the rate of 5 per cent per annum. The right to anticipate the payments on the house gives to the organization somewhat of the character of a savings bank, and furnishes a stimulus to thrift. It has the advantage, also, of creating

an emergency fund, so to speak, in case the tenant should be unable, through sickness or lack of employment, to meet his engagements. In case of death or of permanent disability, so that future installments can not be paid, the occupant is considered to have been merely a tenant, and there is returned one-fifth of the monthly payments and any advance payments made, but without interest, less any sums due the society beyond the price of the property.

ROUEN CHEAP DWELLINGS COMPANY, ROUEN.

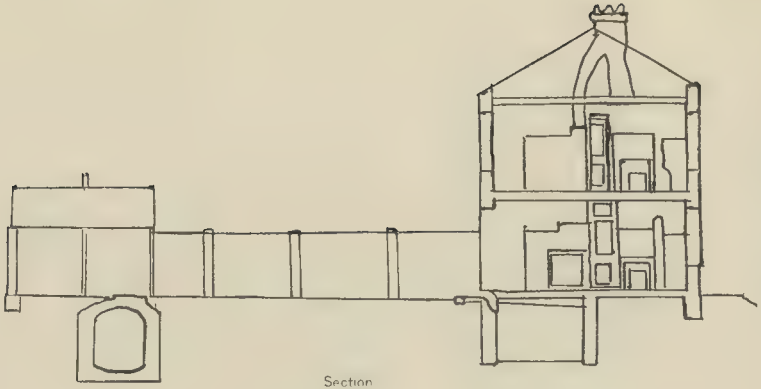
This company (Société Rouennaise de Maisons à Bon Marché) owns two groups of houses. One group is situated in rue Boucher de Perthes, composed of 44 houses, the other in rue Valmont de Bomare, composed of 25 houses. The houses are built in three styles and are of brick and stone. Each single house covers 355 square feet, upon a lot 1,141 square feet in area. The open space is at the rear and is used as a garden. There is a cellar to each house, unpaved, but sprinkled with sand or gravel. A shed at the end of the garden is used for fuel storage, and contains a laundry and privy. Refuse falls into a pit, and is removed by an odorless excavating company whenever cleaning is necessary. All waste water goes to the sewer. A fountain in the center of the group of houses furnishes an unlimited supply of water. Heating is done with stoves burning oil or coke; they serve also for cooking purposes. Fireplaces with marble mantels have been put in the parlors and upper bedrooms. Gas jets and gas stoves for cooking are furnished, however, by the gas company of Rouen. Windows and doors on the ground floor have shutters. The accompanying plan (plan No. 60) shows the disposition of these houses.

The particular house selected for description contains five rooms. The kitchen is 15 feet 8 inches by 9 feet 2 inches, the parlor about the same size, one bedroom slightly larger, and two other bedrooms each 9 feet 2 inches by 6 feet 7 inches. The ceiling in the first story is 9 feet 2 inches and in the second 8 feet 10 inches.

The daily earnings of the head of a family occupying a house of this type vary from 4 to 7 francs (77 cents to $1.35), while the average annual earnings of the whole family amount to about 2,000 francs ($386). The annual rental for the house is 207 francs ($39.95). The probable rent for similar accommodation in the neighborhood would be 300 francs ($57.90). By paying 312 francs ($60.22) per annum for sixteen years the tenant may become proprietor.

The original cost of the lot was 580 francs ($111.94) and of the house 3,175 francs ($612.78). The first dwelling erected by this company was opened for occupancy in April, 1888. In all, sixty-nine houses have been built. The total cost of land was 40,000 francs ($7,720) and of the buildings 219,000 francs ($42,267).

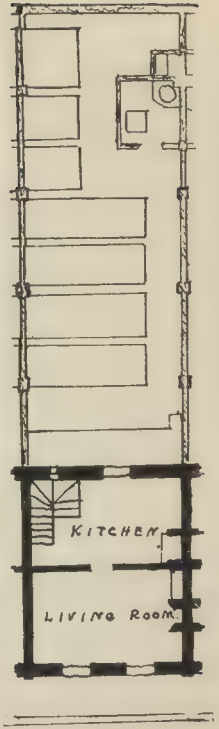
The company's share capital is 130,000 francs ($25,090). Three per

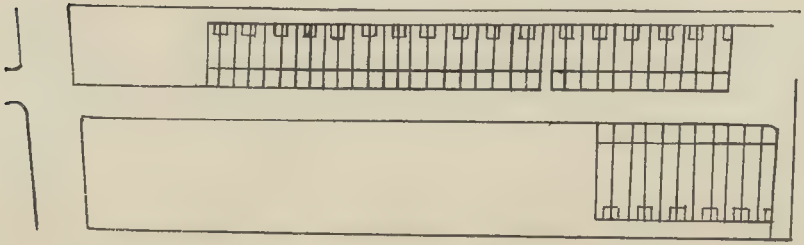


Section

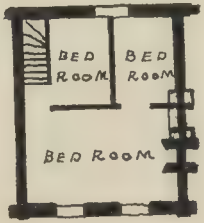


Elevation





Plan showing entire group



Second floor

Ground floor

HOUSE OF THE ROUEN CHEAP DWELLINGS COMPANY, ROUEN, FRANCE

PLAN NO. 60.

cent dividend has been paid annually since the formation of the company, the surplus being credited to reserve. The reserve set aside to the end of the fiscal year 1891–92 was 19,736.10 francs ($3,809.07), or over 15 per cent of the capital stock. It is therefore very evident that if the reserve be counted the annual net profits have been much beyond the sum paid as dividend. The reserve has amounted to about 5 per cent per year, so that 8 per cent in reality represents the net profits of the company. No capital has been borrowed. The tenant, being considered the owner, is bound to make repairs. However, the company has taken charge of roofing, and this has involved an expense of about 3 francs (58 cents) per house per annum. The taxes amount to 33.75 francs ($6.51) annually, all of them paid by the tenant. These taxes are exceedingly heavy. The burden on the land is 13.44 francs ($2.59), the tax on doors and windows 15.81 francs ($3.05), and the personal tax 4.50 francs (87 cents). In the opinion of the company the taxes tend to retard the erection of small model dwellings and increase the rent to the tenant from 12 to 15 per cent. The building of model dwellings, they believe, would be encouraged by remitting all taxes on those whose rental value was less than 100 francs ($19.30) per annum, 75 per cent on those whose rental value was 200 francs ($38.60) per annum, 50 per cent on those valued at 300 francs ($57.90) per annum, and 25 per cent on those valued up to 400 francs ($77.20) per annum.

All the houses have been full, so that there was no loss from empties; neither was there any from arrearages. Rents are paid monthly, when due, and are called for by an authorized agent. Tenants may remain two months in arrears before being ejected, but the amount deposited as a guarantee for the payment of rent must first be exhausted. As a matter of fact, no case of this kind has yet arisen. Six months' notice is required of intention to leave, though this rule is not enforced in all cases. Rents have remained stationary, and represent about one-sixth of the earnings of heads of families. Tenants are not permitted to sublet until ten years have passed. Boarders are not forbidden, but so far none have been received. The average death rate among inhabitants of the model dwellings has been 6.6 per 1,000. In the ward in which they are situated the death rate fluctuates between 32 and 48 per 1,000; for the whole city between 32 and 35 per 1,000. There were five births, all legitimate, within the model dwellings in the fiscal year 1891. The number of legitimate births in the ward in which the buildings are situated during the same time was 488; illegitimate births, 144. For the year the total number of legitimate births in the city was 2,137; illegitimate births, 634.

The majority of occupants live from 1 to 2 kilometers (0.62 to 1.24 miles) from their places of work; none of them farther. The cost of a round trip for this distance is 40 centimes (8 cents). About one-fourth of the occupants live from one-half to one kilometer (0.31 to 0.62 mile) from their places of work.

The occupations and earnings in 1892 of heads of families in one of the groups of houses owned by this company appear in the following table:

OCCUPATIONS AND EARNINGS OF HEADS OF TENANT FAMILIES OF THE ROUEN CHEAP DWELLINGS COMPANY.

Occupation.	Number.	Average annual earnings.	Occupation.	Number.	Average annual earnings.
Attorney's clerk	1	$231.60	Riveter	1	$289.50
Blacksmith	1	347.40	Sexton	1	115.80
Brass molder	1	231.60	Shoe cutters	3	347.40
Cart driver	1	347.50	Shoemaker	1	289.50
Cartwrights	2	289.50	Spinner, head	1	386.00
Corporation clerk	1	347.40	Spinning factory employee	1	289.50
Fitters	3	347.40	Stonecutter	1	347.40
Household servant	1	231.60	Tailor	1	289.50
Iron turners	2	386.00	Tollgate keepers	9	289.50
Joiner	1	289.50	Typographers	2	347.40
Locksmiths	4	347.40	Warehouse clerks	2	289.50
Overseer	1	289.50	Weaver	1	231.60
Railway clerk	1	347.40			

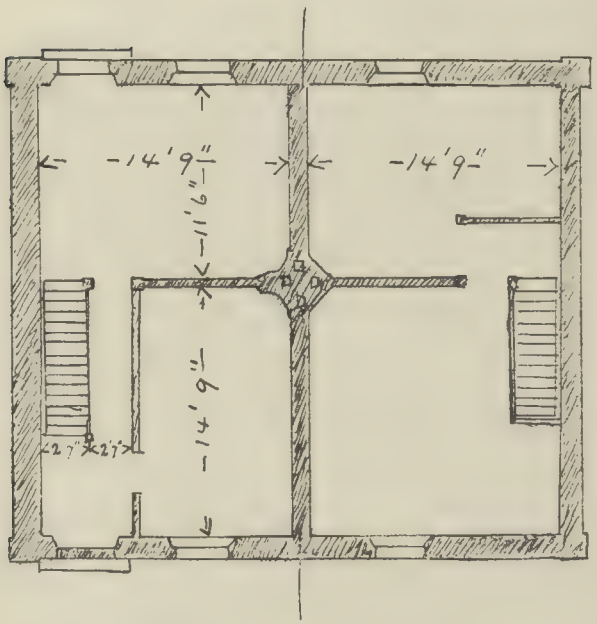
SOLVAY AND COMPANY, VARANGÉVILLE-DOMBASLE.

This company started in 1878 and has built 389 dwellings, housing 2,122 people. Nearly all of these contain four rooms each. The object of the company has not been simply to provide house accommodation, but to assist employees to become owners of homes. A plan of a typical house is shown (plan No. 61).

It is situated, with open space all round it, on a lot of 2,153 square feet. Less than one-half of the lot is built upon. The building is constructed of brick and cut stone, and comprises two stories besides a cellar, which is paved with bricks. A privy for the use of each family is situated outside. Odorless barrel reservoirs are used, and the refuse is removed periodically by the company. During summer time extra disinfection is made. Each house consists of four rooms—a kitchen 14 feet 9 inches by 11 feet 6 inches, a parlor 14 feet 9 inches by 9 feet 2 inches, and two bedrooms, each 14 feet 9 inches by about 12 feet. The ceilings are 8 feet 8 inches high. The rentals per month are 12 francs ($2.32). At least double this price is exacted by private owners of similar dwellings in the neighborhood. The company makes abatements of rent to workingmen who have been in its service for specified periods and have families of a certain size. This plan starts with men who have served seven years and have two children, or one year with six children, who are entitled to 25 per cent reduction, and goes up to 100 per cent reduction—that is, free rental in the case of employees serving ten years and having six children or twenty-eight years with two children. These abatements are made with the understanding that whenever a child works the number of the family is considered to have been diminished by two. Payments are made regularly throughout the year and at the end of the year one-half of the sum remitted is returned to the tenant; the other half is deposited in the savings bank to the account of the tenant, where it must remain for five years.



Front elevation.



Ground floor. Second floor.

HOUSE OF SOLVAY AND COMPANY, VARANGÉVILLE-DOMBASLE, FRANCE.

PLAN NO. 61.

The original cost of one of these houses, with land, was about 3,860 francs ($744.98). So many houses were furnished free of rent that in 1889, out of 285 then built, costing 1,340,000 francs ($258,620) the rental income was received from only 900,000 francs ($173,700) of this value; in other words, houses costing 440,000 francs ($84,920) were given free of rent. The gross rental is less than 2 per cent on the capital invested. Working people may buy the houses they rent, or they may borrow money from the company at 2 per cent with which to build to suit themselves; or when owning land of one-fifth of the value of their proposed property, they may borrow at 2 per cent up to 2,500 francs ($482.50). In the latter case the company takes a mortgage on the property, which is liquidated in installments extending over twelve years or less. In return of loans the workingman may, at any time, make additional payments, the amounts thus paid in bearing interest at 3 per cent. If he leaves the service of his employer he may continue the payments on his debt, but 4 per cent interest will be charged. If by death or for any other reason the house becomes the property of a person not in the service of the company the latter may demand the immediate payment of the balance due, or where it permits the continuance of payments by installments, 5 per cent interest must be paid. Where houses are let, rent is payable fortnightly and deducted from wages. Discharge or voluntary termination of service involves the immediate vacation of a rented house, there being a clause in the contract to this effect.

This company has, in addition, established certain other institutions for the benefit of its employees, the most important of which are—medical service, with aid in case of injury or sickness; free medicines to all persons in the families of those who have been more than two years in the service of the company, and in case of workingmen under two years' service, at 33⅓ per cent reduction from the regular rate for himself and at 20 per cent reduction for any member of his family; a hospital and visiting nurse; plain and mineral baths for employees and their families; insurance against accident without cost to workingmen; a relief fund; a savings bank; indemnity during temporary military service; garden lands for rent at a low figure; scholarships for children of workingmen who display special aptitudes and wish to attend the industrial school in Nancy; old age pensions.

M. MENIER, NOISIEL.

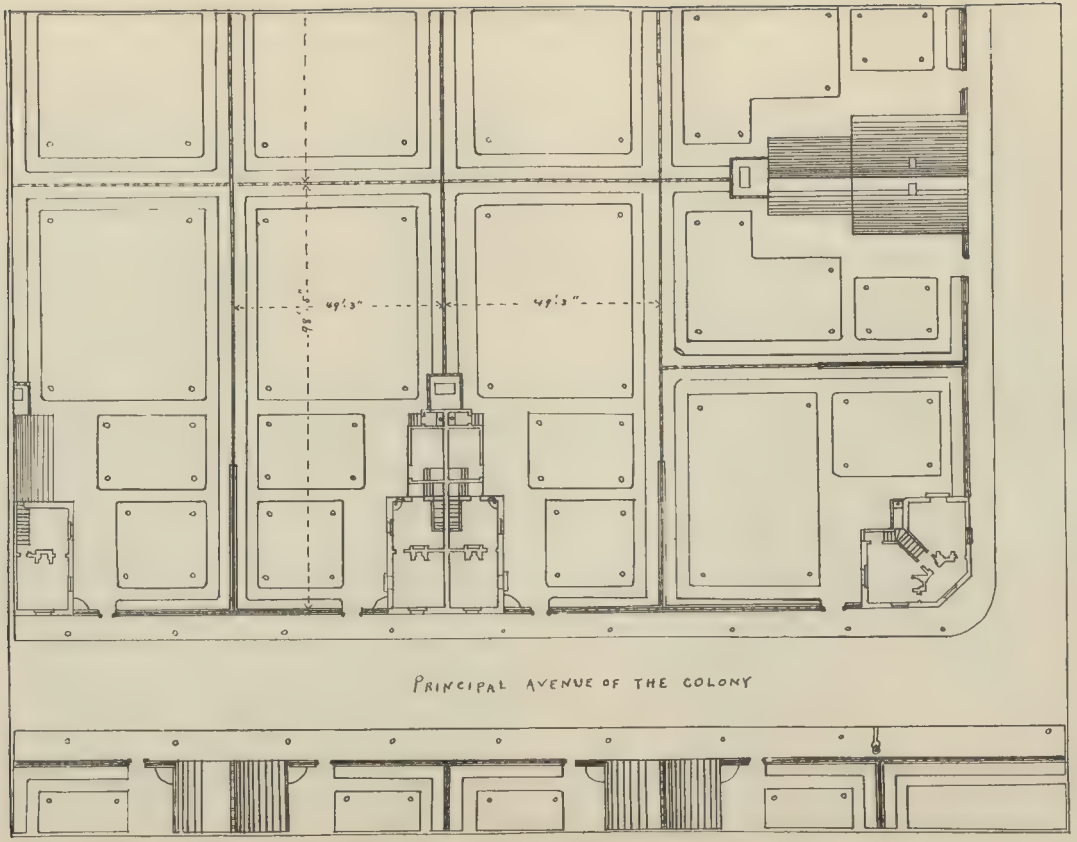
This gentleman has erected houses comprising 295 tenements, each house, with one or two exceptions, containing two tenements, for the employees of his factory. The object has not been a commercial one, but, while asking the same rent that would be paid for much inferior accommodation in the village, he seeks small direct return, knowing well that the improvement to the tenant means a clear economic gain to himself.

The houses each have a frontage of about 26 feet 3 inches and a depth of 45 feet 11 inches. They are situated on lots having 98 feet 5 inches frontage and equal depth, leaving open space at the side and rear, which is used chiefly for a vegetable garden. The buildings are two stories high, and are constructed of brick upon a foundation of rough stone. The flooring is laid upon iron beams filled in with brick and mortar, and the roofing is of tiles and the chimneys of brick. There is a cellar under each kitchen paved with packed clay, with an entrance at the rear of the building.

The accompanying plans (plans Nos. 62 A, 62 B, and 62 C) show the arrangement of houses and gardens, the front and side elevation, and the ground and second floor plan of the type of houses described.

The houses are, as a rule, for two families, but each family has a separate entrance. Every family has a separate water-closet, situated outside the building and connected with a large drain pipe which runs in the rear of all the houses. A reservoir at the upper end of this pipe furnishes a strong flow of water several times during the day, keeping it clean. Water is not brought into the houses, but hydrants in the street furnish an unlimited supply. A range is placed in each kitchen, and a shed is erected as an annex in the rear from which a door opens into the kitchen. This is utilized for storage of wood, for washing, etc. There is a roomy closet in each kitchen under the stairway. There is also considerable space in the attics which may be utilized for storage or for drying clothes. Grates are found in two of the three bedrooms of each tenement. The kitchens are paved with tiles; the other rooms with small blocks of wood. Kitchens and halls are plastered and painted; the other rooms are neatly papered, and the fireplaces are in a measure ornamental. The streets are 32 feet 10 inches broad and are well kept, lighted by gas, and have a complete system of shade trees. The brick garden walls are 2 feet 7 inches high, surmounted by an iron fence of equal height. Each house is divided into tenements by a wall running through its center at right angles to the street. Each tenement has two entrances at the side next the garden—one to the front room and one to the shed. A door from the kitchen leads to the front room and a stairway from the kitchen to the chamber. All the windows have shutters. While the houses are not varied in architecture, nevertheless their surroundings present a very attractive appearance. The cubic air space of a kitchen and three bedrooms is approximately 5,125 feet.

The rental of a typical tenement is 150 francs ($28.95) per year. The earnings of heads of families who are employees in M. Menier's chocolate factory vary from 140 to 200 francs ($27.02 to $38.60) per month. The rent consumes from a tenth to a twelfth of the earnings of the head of the family. In addition to the earnings of heads of families, wives earn from 60 to 95 francs ($11.58 to $18.34) per month in the factory, and the children over 14 years of age a respectable sum.



PLAN OF HOUSES AND GARDENS OF M. MENIER, NOISIEL, FRANCE.

PLAN NO. 62 A.



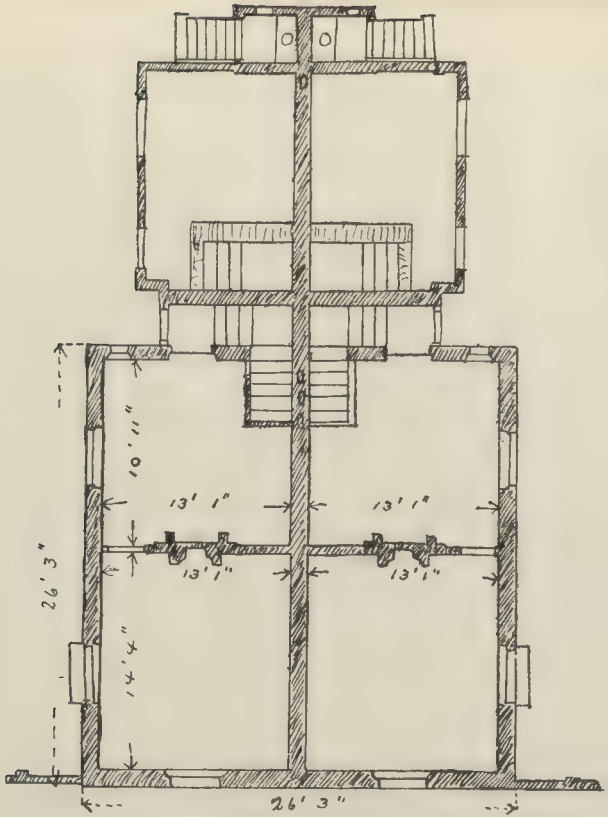
Front elevation.



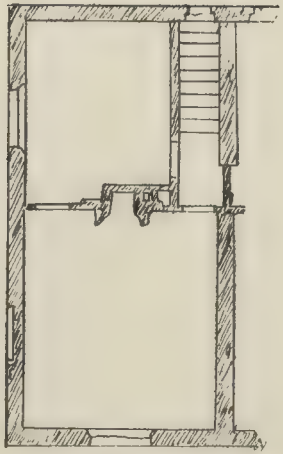
Side elevation.

HOUSE OF M. MENIER, NOISIEL, FRANCE.

PLAN NO. 62 B.



Ground floor.



Second floor.

HOUSE OF M. MENIER, NOISIEL, FRANCE.

PLAN NO. 62 C.

The houses cost about 10,000 francs ($1,930) each. Rentals are therefore fixed on the basis of 3 per cent gross.

The land tax is 15.25 francs ($2.94), and the rate levied for doors and windows is 18.72 francs ($3.61) per annum. Taxes, as well as all other expenses, which it is calculated amount to one-half of the gross rental, are borne by the proprietor.

The proprietor pays all repairs and taxes, furnishes water, provides free schools for children, free medical attendance and relief, besides baths and literary and musical entertainments.

The houses were first habitable in August, 1875. The present value of the housing property is placed at about 1,800,000 francs ($347,400). Tenants are not allowed to become purchasers, for the reason that the proprietor believes that the houses should not be put to any other use than that of giving shelter to his own working people. It would be impossible for him to control their use, he thinks, if he should permit their acquisition by others.

The houses are fully occupied. Rents are paid monthly, being deducted from wages. The lease contract is verbal, not written. Rents have neither advanced nor declined since the beginning. About 1,400 people in all are housed in these model dwellings. In order to secure stability in the personnel of the establishment, rents are lowered, according to a fixed scale, after ten, fifteen, and twenty years' service. It is not surprising, therefore, to find that the average duration of tenancy is exceedingly high. Subletting or receiving boarders may be allowed.

Baths, where hot and cold water is supplied, laundries, a public bakery, library with 1,200 choice books, meeting room, concert hall, and clubroom are maintained for the use of tenants. These, together with medical aid and maintenance of schools, cost about 53,500 francs ($10,325.50) annually.

There is a large open space in the village planted with trees. Here are situated the schools, cooperative store, with bakery in the rear, meeting halls, restaurants, where workingmen who are not tenants get their meals, the refectories, the hospital, the library, etc. All these institutions are maintained at the entire expense of the proprietor. Schools are not even aided by the state tax. The school buildings are admirably situated, and have every facility, especially large playgrounds in the rear, paved with wood, where boys and girls occupy themselves at games in separate grounds. A savings bank has been opened, which gives 6 per cent interest on deposits. Provisions are sold at cost. The philanthropy of the proprietor has carried him into these various enterprises, but the results which have been reached, he believes, justify the economic expenditures which they have necessitated.

BELFORT CHEAP DWELLINGS COMPANY, BELFORT.

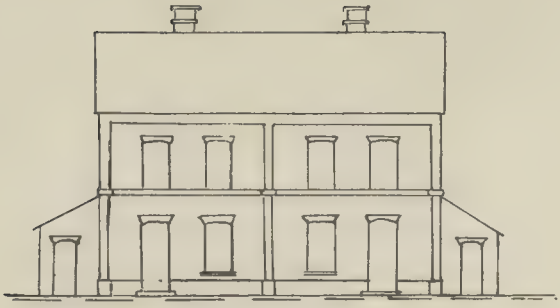
This company (Société Belfortaine des Habitations à Bon Marché) has built houses with the purpose of selling them to tenants on fixed

conditions. There are different kinds of buildings, but a single type, which contains four separate tenements, is chosen for description. One of these buildings occupies about 14 per cent of a lot of 10,915 square feet, an open space, which is used as a garden, being left at the front, rear, and sides. The building is of two stories and a garret, and is built of calcareous rag stone covered with a coating of cement or mortar. The exterior walls are 19 inches thick. There is a cellar with a floor of gravel. A single street entrance serves for two families. There is a privy situated inside the building for every two families. The soil pipes are of cast iron and are ventilated from the roof. The appliances also are of the same material, except the bowl, which is enameled. The pit is ventilated by a special pipe in the wall opening at the roof. It is outside the foundation wall, and the refuse falls in barrels, which may be taken away at convenient periods. Waste water is carried off through trapped pipes to a sewer passing back of the building. The tenements are heated by wood or coal stoves and lighted principally by oil lamps. Shutters have been put on the first floor windows and curtains in the second story. There is a porch over the entrance. Each tenement contains two rooms and a kitchen. The rooms are 14 feet 11 inches by 11 feet 6 inches and 9 feet 10 inches by 8 feet 7 inches. The kitchen is 11 feet by 9 feet 10 inches. Ceilings are 8 feet 10 inches high. There is also a small attic chamber and a storeroom.

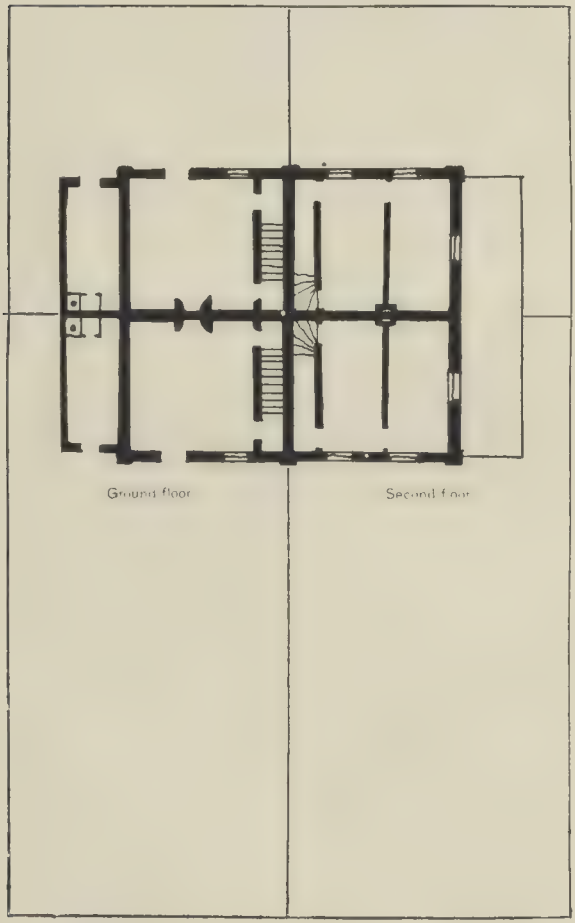
The cost of the lot upon which this building is situated was 660 francs ($127.38), of the building 15,065.25 francs ($2,907.59). This company has but recently commenced operations, the first building having been opened for habitation September 1, 1892. It is too early therefore to give the financial results which have been attained. At the time the inquiry was made nine buildings had been constructed, while fifteen others were projected on the same plot of land. The original cost of the land built upon was 14,834.95 francs ($2,863.15); the original cost of the buildings was 113,572 francs ($21,919.40).

Tenants are encouraged to become proprietors of the houses they occupy. The type of building which has just been described is in reality a double house, each part consisting of two tenements, situated one above the other, which may be used either as one four-room tenement or as two two-room tenements, kitchens not included. When sold, one half, which is quite distinct in all its appointments from the other half, brings 9,350 francs ($1,804.55). The purchase money is payable in fifteen or twenty years, under the following conditions:

Conditions.	15-year payment.	20-year payment.
Payment on taking possession	$106.15	$106.15
Monthly payment, including rent and installment	13 51	11.58
Yearly payment	162.12	138.96
Taxes and fire insurance	6.18	6.18



Front elevation



HOUSE OF THE SAINT-GOBAIN MANUFACTURING COMPANY, SAINT-GOBAIN, FRANCE

PLAN NO. 63.

A tenant who wishes to become proprietor in fifteen years pays altogether about 12,600 francs ($2,431.80) in rent and installments. Where he is simply a tenant he would pay about 9,000 francs ($1,737) for rent alone during the same period. In a twenty-year term he pays about 14,400 francs ($2,779.20) for rent and installments. Had he continued a tenant he would have paid 12,000 francs ($2,316) for rent alone. Five per cent interest is the rate provided for on all payments to the company. Reservations in the deed are made compelling the tenant proprietor to keep the house in good condition and the garden in a state of cultivation. The right of building on the vacant space is also surrendered. The land tax amounts to about 8.40 francs ($1.62) annually per dwelling, the door and window tax to 10.85 francs ($2.09), and the registration of lease tax to 63 centimes (12 cents).

The occupations and earnings of heads of families occupying the group of model dwellings are as follows:

OCCUPATIONS AND ANNUAL EARNINGS OF HEADS OF TENANT FAMILIES IN HOUSES OF BELFORT CHEAP DWELLINGS COMPANY.

Occupation.	Number.	Average annual earnings.	Occupation.	Number.	Average annual earnings.
Blacksmiths, locksmiths, fitters, etc	8	$270.36	Mason	1	$194.45
Carpenters	2	329.07	Small shopkeeper	1	299.15
Fireman	1	251.29	Watchman	1	179.49
House painter	1	179.49	Weavers	3	199.43
Laborers in industrial establishments	6	185.47			

Rentals are about the same as for other accommodation in the neighborhood, which is inferior in quality. The rentals consume about 20 per cent of the earnings of tenants. Six heads of tenant families live under half a mile from their work, 17 between 1 and 2 miles, and 1 between 2 and 3 miles. As there are three distinct types of dwellings the houses in this group are varied architecturally.

SAINT-GOBAIN MANUFACTURING COMPANY, SAINT-GOBAIN.

This organization (Compagnie de Saint-Gobain), which is one of most honorable antiquity, commenced the construction of dwelling houses for its working people in 1764. It has pursued the policy to a greater or less extent at Saint-Gobain and Chauny, and up to the present time 527 houses have been constructed, which are now rented to workingmen, while 551 workingmen have become proprietors through the company's assistance.

The types of houses are quite diverse. Much attention has been paid to sanitary conditions, and the habitations are most desirable. The houses are built in groups of from four to eight dwellings on different sections of the land in the neighborhood of the factories. The type of house which is chosen for description (plan No. 63) is of two stories with a cellar and gives accommodation to four families. It is constructed of

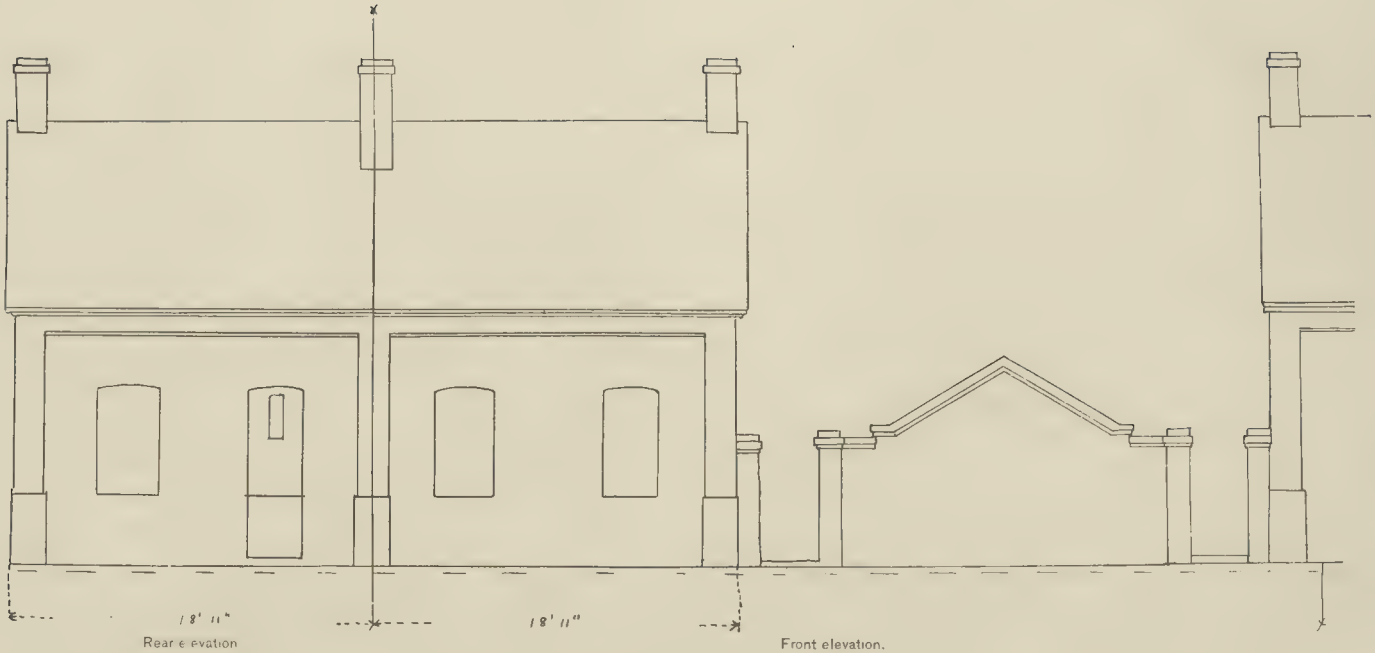
stone in some instances; in others of brick. There is an open space on all sides of the house equal to about four-fifths of the entire lot. There are gardens at the front and rear. Each tenement consists of a kitchen 16 feet 4 inches by 15 feet 9 inches, two bedrooms, each 16 feet 4 inches by 7 feet 9 inches, and a scullery 15 feet 7 inches by 6 feet 7 inches. Ceilings are 9 feet high. The rentals per tenement are from 7 to 10 francs ($1.35 to $1.93) per month.

The company makes no separate calculation as to the financial returns from its housing enterprises, believing that it is recouped for a nominally small return by the extra assiduity and contentment of its working people. It has also inaugurated for the benefit of its employees a pension fund, a medical service, an indemnity fund in case of accident, a sick relief fund, savings banks, cooperative stores, day nurseries, schools, and churches. The social influences of these accessories may, perhaps, be gauged in a measure by the following statistics: Out of 2,194 working people, married and single, 129 of whom were females, 55 per cent have been in the employment of the company less than ten years, 21 per cent from ten to twenty years, 14 per cent from twenty to thirty years, and 10 per cent thirty years and over. Thirty-one of this number have completed between forty and fifty years of service.

MINING COMPANY OF ANZIN, ANZIN.

The Mining Company of Anzin (*Compagnie des Mines d'Anzin*) is of ancient foundation, having commenced business in November, 1757. Its operations to-day are very large, covering nearly 70,000 acres. Numerous enterprises having in view the welfare of employees have been founded and are successfully operated by this company. Besides its houses, which are either rented or sold, industrial education, a savings bank, cooperative society, sick benefit, pension fund, mutual aid fund, indemnity to the wife while the husband is called away to military service, churches, and medical service (hospitals, salaries of physicians, etc.) represent its principal activities. The cost to the company of these institutions for the welfare of its working people in 1888 was 1,567,757.22 francs ($302,577.14).

A typical house (plans Nos. 64 A and 64 B) is selected for description. It covers 14 per cent of a lot which has a frontage of 32 feet 9 inches and a depth of 114 feet 10 inches. The open space, which is in the rear and at the sides, is used mostly for garden purposes. The house is constructed of brick, with exterior walls having a thickness of 14 inches. No special precautions have been taken in the constructive features to secure fireproof quality, since the materials are in themselves almost incombustible. The house has a cellar paved with hard bricks, which is used for storage of fuel, etc. Only one family occupies a house. No special facilities for ventilation have been provided as each house is detached. The house has a privy, situated outside, and ventilated simply by two windows. Garbage is removed every day by a special

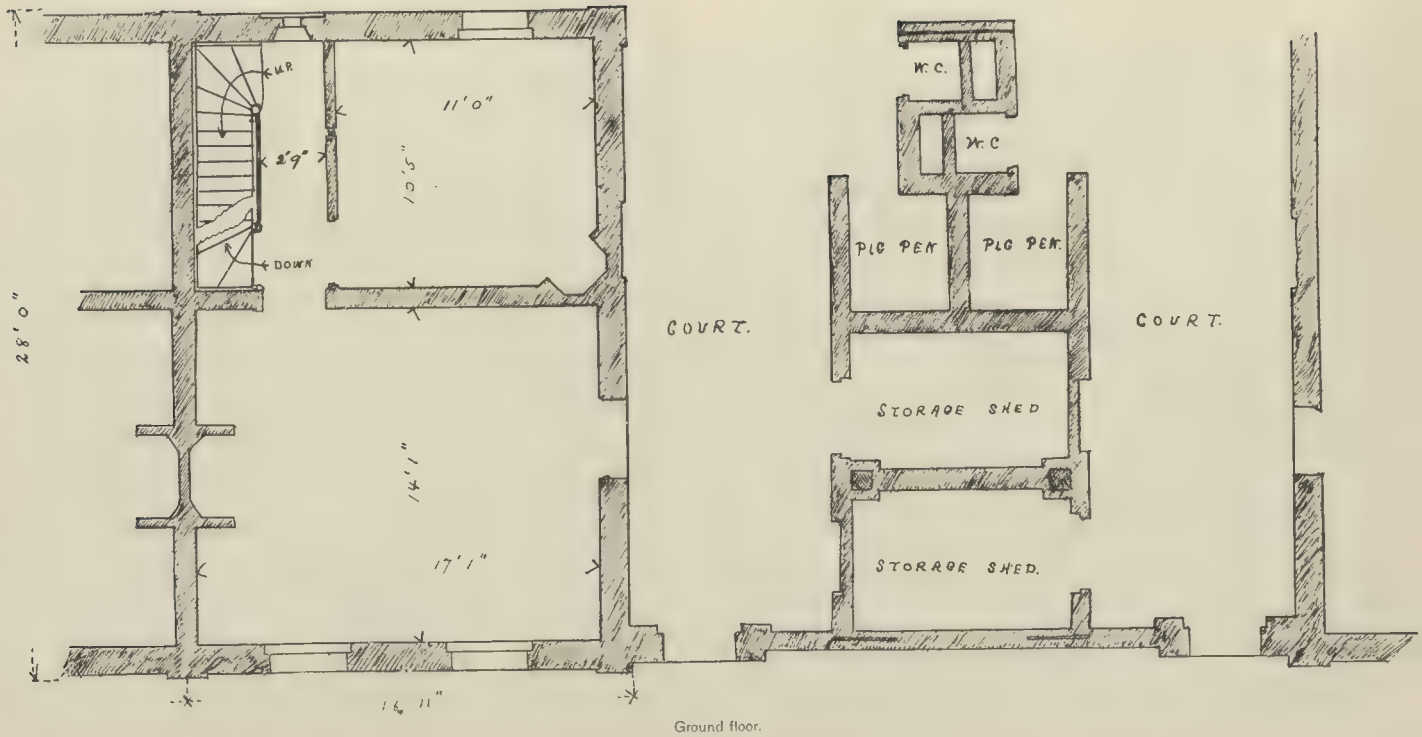


Rear elevation

Front elevation.

HOUSE OF THE MINING COMPANY OF ANZIN, ANZIN, FRANCE.

PLAN NO. 64 A.



Ground floor.

HOUSE OF THE MINING COMPANY OF ANZIN, ANZIN, FRANCE.

PLAN NO. 64 B.

service provided by the corporation. Waste water drains into the street. Heating is done by fireplaces or stoves, and lighting by oil lamps. Tenants supply their own facilities for cooking. There are no pantries or clothespresses.

The house is not provided with porches or verandas, neither is it conspicuous for exterior decorations of any sort. Windows on the first floor are provided with shutters. The interior walls have been whitewashed.

The kitchen of the typical dwelling is 17 feet 1 inch by 14 feet 1 inch; the living room 11 feet by 10 feet 5 inches; the two bedrooms 13 feet 9 inches by 13 feet and 17 feet 5 inches by 11 feet 9 inches, respectively. The hall is 10 feet 5 inches by 2 feet 9 inches. The hall, kitchen, and living room are situated on the ground floor, and have ceilings 9 feet 2 inches high. The bedrooms are in the upper story, and are 8 feet 2 inches high.

A miner living in one of these dwellings earns about 1,350 francs ($260.55) annually. The total family earnings would probably approximate 2,250 francs ($434.25). The annual rental paid for the house is 66 francs ($12.74), while the probable rent for similar accommodation in the vicinity would be 216 francs ($41.69). The original cost of the lot was 300 francs ($57.90), and of this type of house 3,100 francs ($598.30).

Only workmen employed by the company may occupy the houses. Rents are deducted from wages monthly. The houses are always full. No formal lease is entered into. Rentals are fixed at about 3 per cent of the original cost of land and buildings, and have neither advanced nor declined for a number of years. They are now about 5 per cent of the earnings of the head of the family. The average duration of tenancy is about five years. Tenants are not allowed to sublet or to receive boarders. The only annex for the common use of tenants in this group of model dwellings is a laundry. Houses are all of the same type, and are monotonous in their uniformity.

Houses are sold to working people, ninety-three having been so disposed of up to 1889. Advances have also been made to working people who wish to build their own houses. Up to 1889 1,446,604 francs ($279,194.57) were advanced, of which sum 101,140.09 francs ($19,520.04) only remained to be repaid. In this way working people have been able to build, according to their own tastes, 741 houses. Up to 1889 this company owned 2,628 houses which it rented to its employees.

BLANZY MINING COMPANY, BLANZY.

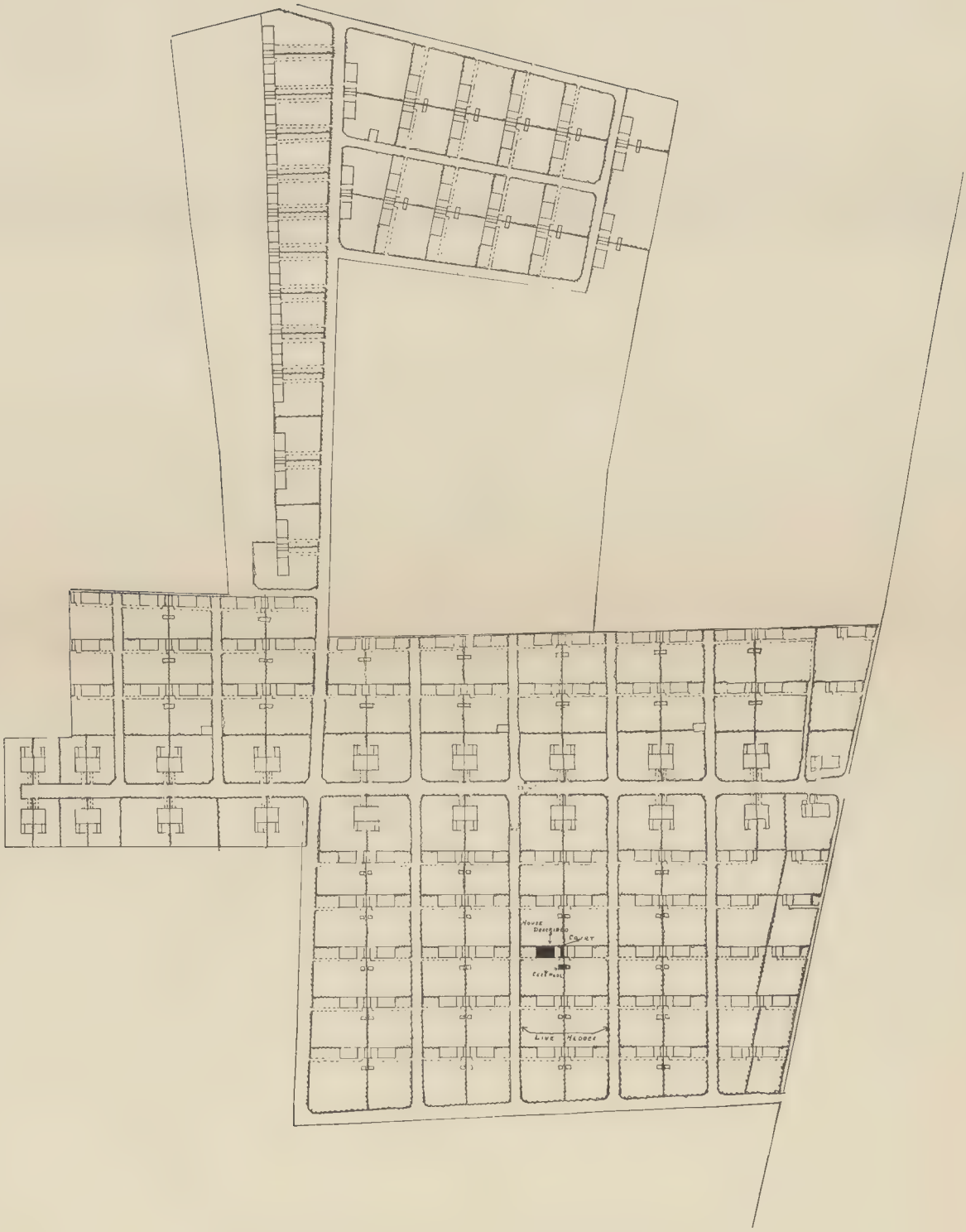
This important company commenced housing operations in the year 1834. It has since built over 1,000 houses for its working people. The sums spent for this purpose amount to 2,148,703.69 francs ($414,699.81), while the annual rent roll is at present 38,226.15 francs ($7,377.65). Repairs, taxes, and expense of management absorb the whole of this. No attempt is made to secure a commercial return from the property.

The company also sells land on time payments at a low figure and advances 1,000 francs ($193) to aid in the construction of a house. Repayment is provided for within ten years, without interest. In this manner 500,000 francs ($96,500) had been loaned up to 1889; 81,711.85 francs ($15,770.39) of this sum remained to be repaid, and it was found that 1,079 working people, being 29 per cent of the whole number in the service of the company, were proprietors of the houses in which they lived. The houses rented by the company shelter two families, as a rule. There are four rooms to each tenement, and the annual rental is 72 francs ($13.90) per tenement. Only about one-sixth of the area of the land is built upon.

MINING COMPANY OF LENS, LENS.

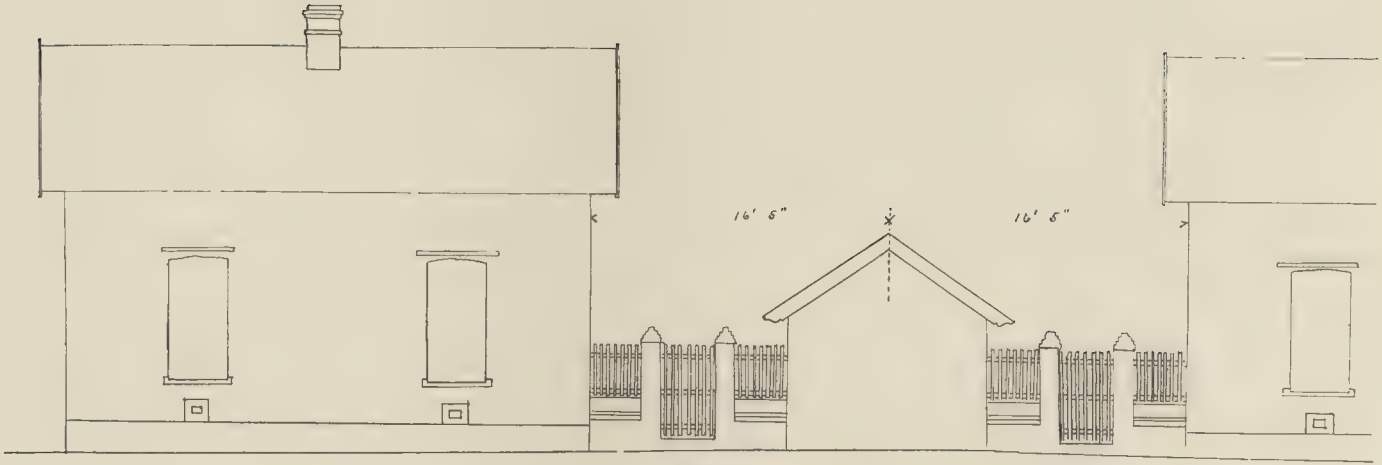
The group of model dwellings of the Mining Company of Lens (*Société des Mines de Lens*), known as the Cité Saint Edouard, contains 171 houses of the particular type described in the context and shown in the plans. A little over 10 per cent of a lot containing 5,920 square feet is occupied by the building. The open space is used as a kitchen garden. The house is of one story and attic, and is built of brick. Particular care has been taken in the construction of chimneys to make them fireproof. A small cellar occupies the space under one room of the ground floor. The house is single and detached. It contains, in addition to the cellar, two rooms and a staircase corridor on the ground floor, and on the attic floor three bedrooms, one of which is used as a garret. The court is walled in and paved with bricks, and beyond is situated an out-house containing a privy, accommodation for domestic animals, a henhouse, and a small hayloft. The garden is closed in by a hedge and is usually planted with fruit trees and vegetables. Rain and waste water is collected and conducted by a gutter to a cesspool in the garden some distance from the house. The water is taken from hydrants in the street. Coal for heating is furnished by the company free of cost. Houses are lighted by kerosene lamps, as a rule, but the company contemplates putting in electric lights. Each room on the first floor has a fireplace. First story windows are provided with shutters. The exterior of the house is covered with mortar, painted in two colors in such manner as to give a pleasing appearance. The interior is painted in stone color.

The main living room, which serves also as a kitchen, is 13 feet 5 inches by 13 feet 1 inch. Adjoining it is a bedroom, designed for parents, 16 feet 2 inches by 12 feet 6 inches. The rooms above for the rest of the family are 16 feet 2 inches by 12 feet 6 inches, 13 feet 5 inches by 7 feet 11 inches, and 9 feet 10 inches by 7 feet 11 inches, respectively. There is also a small pantry at the entrance to the stairway. The height of the first story is 9 feet 6 inches, and of the story above 7 feet 3 inches.

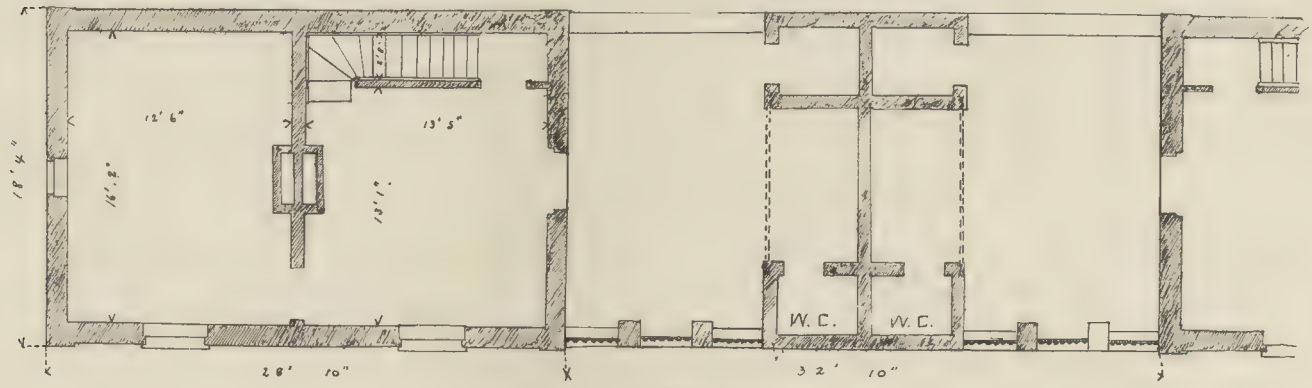


SAINT EDOUARD, GROUP NO 12, MINING COMPANY OF LENS, LENS, FRANCE.

PLAN NO. 65 A.



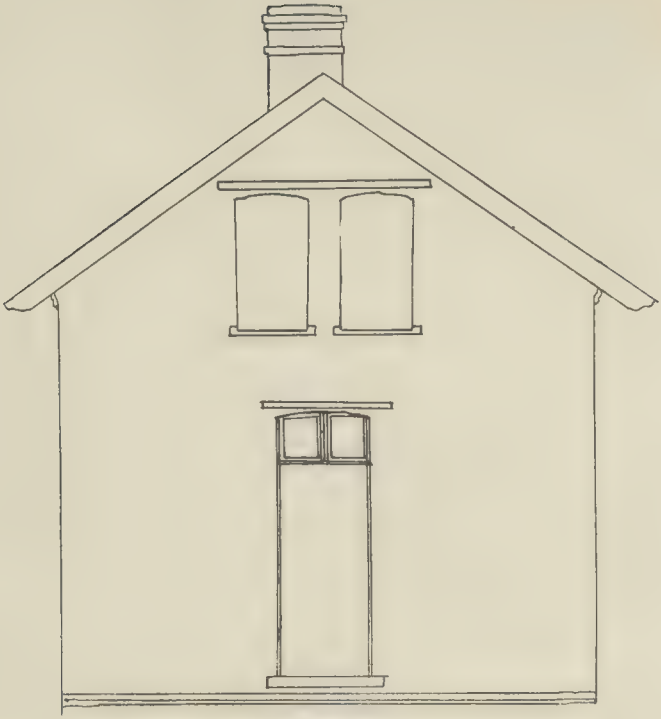
Front elevation.



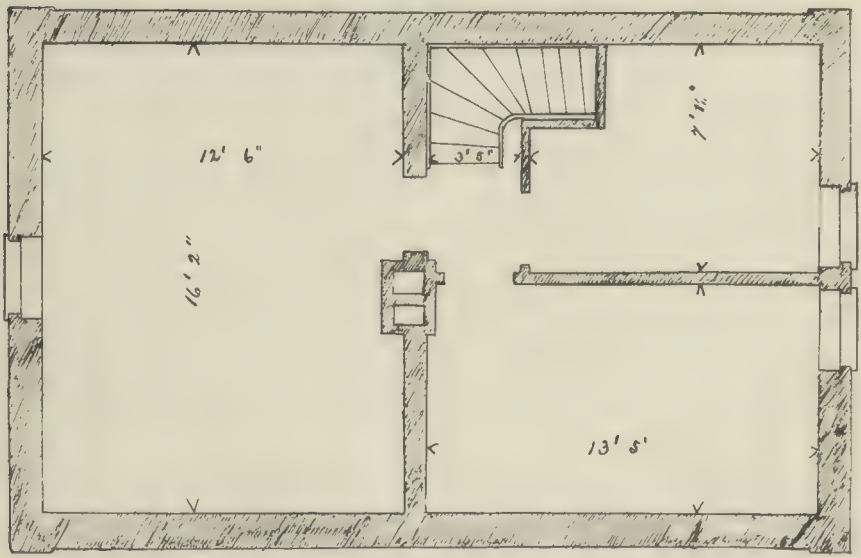
Ground floor.

HOUSE IN SAINT EDOUARD, GROUP No. 12, MINING COMPANY OF LENS, LENS, FRANCE.

PLAN No. 65 B.



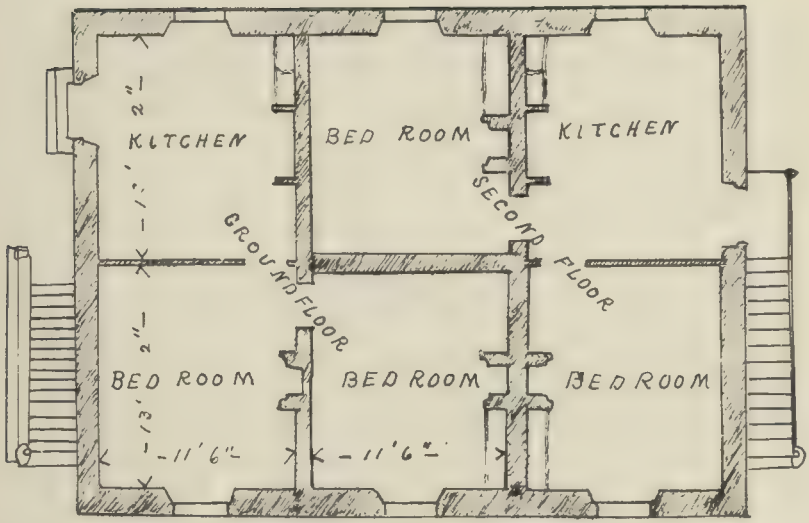
Side elevation



Attic

HOUSE IN SAINT EDOUARD, GROUP No. 12, MINING COMPANY OF LENS, LENS, FRANCE.

PLAN No. 65 c.



HOUSE OF THE PARIS, LYONS AND MEDITERRANEAN RAILWAY COMPANY, LAROCHE, FRANCE.

PLAN NO. 66.

The annual earnings of a miner occupying one of these houses is about 1,665.96 francs ($321.53). The budget of receipts for the total family is about 2,025.77 francs ($390.97). The annual rental of the house is 66 francs ($12.74). Similar accommodation in the vicinity, furnished by private parties, would cost about 300 francs ($57.90).

The original cost of a lot upon which one of these houses is built was 330 francs ($63.69). The house itself cost 4,000 francs ($772). The land tax amounts to 50 centimes (10 cents) per year, the building tax to 6.50 francs ($1.25), and the door and window tax to 9.25 francs ($1.79). All are paid by the proprietor. But 1 per cent of the dwellings were unoccupied during the fiscal year to which this return refers. Rents are called for monthly by an authorized agent of the corporation. In case of nonpayment the rent is deducted from wages. There were no losses on account of arrearages during the fiscal year. If a workman quits the company's employment and refuses to vacate the house he is ejected. There is no lease or contract of rental entered into between the company and tenant. Rents have remained stationary since the first houses were constructed. Plans of a typical house are shown, as well as the general plan of the property (plans Nos. 65 A, 65 B, and 65 C).

PARIS, LYONS AND MEDITERRANEAN RAILWAY COMPANY, LAROCHE.

Thirty-three buildings for employees have been erected, at a total cost of 506,000 francs ($97,658), upon which about 3½ per cent gross rental is received. The buildings are of different types, the prevailing one sheltering four families. They are built of rough stone, ornamented or trimmed with bricks. Only about 10 per cent of the lot is built upon. Each house has two stories and a cellar paved with cement. Each family has a private entrance, as shown in the accompanying plan (plan No. 66).

There are three rooms to a tenement, each one being about 13 feet 2 inches by 11 feet 6 inches in size. The ceilings are 9 feet 10 inches high. The annual rental for accommodation of this sort is 140 francs ($27.02), while fairly similar living places in the vicinity would cost about 160 francs ($30.88). Rents are payable monthly, and are deducted from wages. Houses are occupied principally by foremen and subforemen of track workers.

NORTHERN RAILWAY, BOURGET.

This corporation (Chemin de Fer du Nord) has spent 1,700,000 francs ($328,100) for the construction of workingmen's homes. Its estimated annual return is about 2¼ per cent gross. There are seventeen houses in the group at Bourget, which were opened for habitation in 1883. A typical house contains four four-room tenements. The rentals paid amount to 144 francs ($27.79) per tenement annually. The cost of the lot for each house, containing 9,644 square feet, less than one-fourth of

which has been built upon, was 6,600 francs ($1,273.80); the cost of the house was 19,000 francs ($3,667). The houses are two stories in height. A tenement contains a kitchen and three bedrooms, each of which is 13 feet 1 inch by 9 feet 10 inches in size. The houses are built of rough stone, and are completely surrounded by gardens. Each tenant has his own outside entrance. The houses are situated on the back-to-back principle, so that through ventilation is impossible. Each tenement has a privy, for the exclusive use of its occupants, outside the lodging. A small annex, 7 feet 3 inches by 12 feet 2 inches, belongs to each tenement and serves as a storage room and shelter for the privy. Shutters have been placed at all the windows, and a small awning over the entrance. There are no exterior decorations, except those incident to the form of architecture chosen, and inside carved wooden fireplaces and painted walls comprise the æsthetic effects which have been attempted.

M. SCHNEIDER, LE CREUZOT.

The official report of the section of social economics at the Paris Exposition of 1889 states that M. Schneider, the head of the Creuzot steel works, has had 1,200 houses constructed, each containing, as a rule, a ground floor with three rooms and each having a garden of 6,458 square feet. The houses are rented to the best working people, and rents vary from 60 to 96 francs ($11.58 to $18.53) per annum.

D. WALTER-SEITZ, GRANGES.

Housing operations were begun by this philanthropic manufacturer in 1875. Thirty-seven houses have been constructed, 26 of three rooms and 11 of four rooms each, at a total cost of between 90,000 and 100,000 francs ($17,370 and $19,300). They are rented and not sold. The annual rentals charged are 117 francs ($22.58) each. Similar accommodation in the vicinity would cost from 150 to 180 francs ($28.95 to $34.74). The houses each contain three rooms with cellar and attic. They are surrounded by gardens each containing about 5,500 square feet. Houses are built of stone and are two stories high.

LILLE REAL ESTATE COMPANY.

In 1867 a company (La Compagnie Immobilière de Lille) was incorporated at Lille for the purpose of providing cheap dwellings, with a capital stock of 2,000,000 francs ($386,000). Napoleon III gave a subsidy of 100,000 francs ($19,300), while the municipal council guaranteed a 5 per cent dividend. This company has constructed, according to recent statistics, 318 houses, sheltering 1,810 persons. The rental for a one-story house, designed to accommodate a single family, varies from 17 to 20 francs ($3.28 to $3.86) per month. Two hundred houses have been sold on fifteen years' purchase. The annual dividend of 5 per cent has been regularly paid, without any necessity of recurring to the municipal guarantee.

M. FANIEN, LILLERS.

This gentleman, who is a large shoe manufacturer, has constructed 160 houses for his work people. The houses are of brick, most of them two stories high, with small courtyards or gardens. A privy is provided for each family. A sheet-iron range is put in each house. Rentals are 91, 104, and 130 francs ($17.56, $20.07, and $25.09) per annum, according to location. All of the houses have five rooms each. Tenants are encouraged to become proprietors of the houses they occupy. They may do so upon the payment of 2.75 francs (53 cents) per week for five hundred and twenty weeks. M. Fanien has made 4 per cent net profit in connection with his housing operations. Rents are payable weekly, and are deducted from wages. The houses are situated on various streets, but all are within less than half a mile from the factory. Two bathrooms have been placed in the factory and are free to all workmen. Hot water is provided and baths are ready for use at all times during the day. By paying a small fee to the fireman, baths may be had at other times than during the regular working hours and on Sundays.

In addition to the foregoing, there are numerous model enterprises in France, which have not been mentioned for lack of space. The principal of these are situated at Amboise, Amiens, Bolbec, Clermont-Ferrand, Clichy, Épinal, Flixecourt, Fumay, Havre. Honfleur, Le Creuzot, Lyons, Marseilles, Moulineaux, Orleans, Paris, Pfastatt, Reims, Romilly, Rosendael near Dunkirk, Rouen, Saint-Denis, Saint-Dié, and Thaon.

BELGIUM.

BUREAU OF PUBLIC RELIEF, ANTWERP.

To furnish workingmen with cheap and healthy homes, and at the same time to insure to itself a reasonable return on its investment, has been the object of the Bureau of Public Relief (*Bureau de Bienfaisance*) of Antwerp in constructing several groups of workingmen's homes. The board of directors of this organization possess considerable capital, the revenue from which is applied for the relief of the poor in various ways. They regard it as of double profit if they can aid the poor not only in the employment of the interest but in the investment of their capital as well.

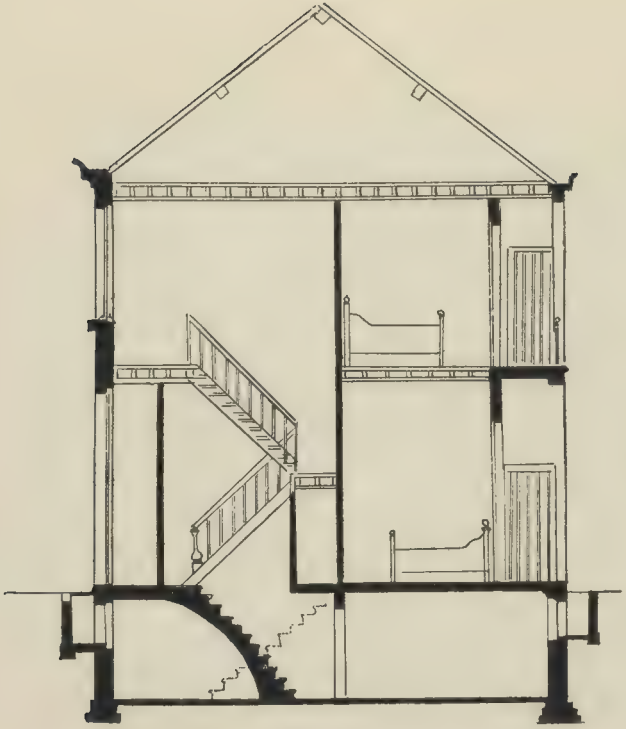
The Antwerp Bureau of Public Relief was the first to undertake, on any considerable scale, the wise policy of spending a part of its resources in endeavoring to prevent pauperism, instead of dispensing the whole for its relief. This idea was conceived as early as 1849, but the first step was not taken until 1860, when permission was asked to employ in this way the sum awarded it in payment for a large amount of its property expropriated on account of the construction of new fortifications. The bureau possessed a suitable tract of land in a part of

Antwerp occupied principally by the poorer people and where unhealthy homes were increasing. It wished to demolish a number of these latter in order to make new streets.

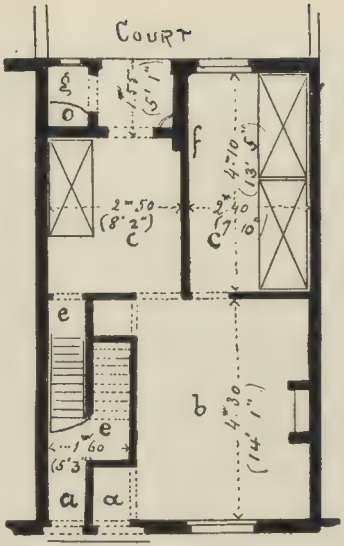
July 3, 1865, a royal decree authorized the construction of the first row of houses, forty-one in number. These were completed in 1866 and were promptly occupied. Three more rows were erected in the following year. All were completed by 1868. These houses, to the number of 167, are built on a dry, elevated tract of ground at the extremity of the city, but not far from the industrial quarters and the new maritime construction works. The land has a total area of 2 hectares (about 5 acres). Two streets have been cut through, one 10 meters (32 feet 10 inches) and the other 12 meters (39 feet 4 inches) broad, paved, sewered, and provided with sidewalks. Groups of houses border on these streets, and in the middle is a square, planted with trees, having an area of 1,000 square meters (10,764 square feet). The houses are built close to the building line and have gardens or courtyards in the rear. The courts are 10 meters (32 feet 10 inches) deep. The two groups of houses which form the center have gardens back-to-back. The public square, which occupies the middle of these two groups, is not entirely lined with houses, and small courts between the houses with low walls allow circulation of air to the interior courts. The accompanying sketch (plan No. 67) shows the plan of a house for two families.

Houses are built of brick of a conspicuous red; the door sills are of stone, and window and door settings are of bluish brick. There is a pretty ornamental ironwork design between the windows. At the angles and in the middle streets, as well as fronting on the square, are houses with a higher elevation constructed for shops. These, with their greater height, painted roofs, and more elegant and diversified fronts, break the monotony of the row and present a more attractive perspective. While this is, in reality, a large settlement for poor people, it hardly has the appearance of being such. The streets are broad and full of life and movement, the quarters do not seem isolated, and all the small industries and small commercial enterprises are represented and thrive here. A list of occupations shows a multiplicity of trades and professions. Though the great majority work elsewhere, a number, such as butchers, tailors, shoemakers, and carpenters, carry on their means of livelihood in the houses they inhabit.

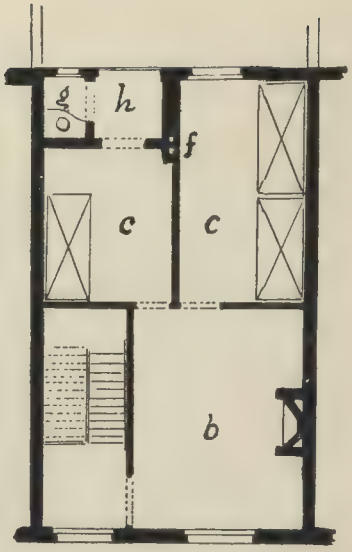
A typical house for one family is two stories high, and covers 296 square feet of a lot containing a total area of 646 square feet. The open space is at the rear, in the form of a walled-in court. The latter serves for the exclusive use of the tenant, and is efficient in providing light and air. It is partially paved with bricks. There is also a cellar, paved with bricks. The house serves as the residence of a single family, so but one street entrance is needed. Through ventilation is provided. A privy has been placed in the brick outhouse erected in the rear of



Section.



First floor



Second floor

a.—Entrance.
b. Room
c. Bedroom.
e. Entrance to cellar.
f. Air shafts.
g. Water-closet
h. Balcony

HOUSE FOR TWO FAMILIES—BUREAU OF PUBLIC RELIEF, ANTWERP, BELGIUM.

PLAN NO. 67.

the court. A pit lined with cement receives the night soil, etc. This is pumped out by the city excavating apparatus every three or six months, at the proprietor's expense. A vaulted cistern is situated in the rear of the house to receive rain water. A well is also provided, and is used by several tenants in common. Tenants provide their own means of heating and lighting. Front doors and windows on the first floor are transomed. All rooms have chimney holes. The kitchen floor is paved with bricks. There are no window shutters, porches, or verandas. Streets and sidewalks are paved with Belgian blocks.

A single house contains a kitchen 10 feet 6 inches by from 11 feet 6 inches to 15 feet 5 inches, a small living room 4 feet 11 inches by 11 feet 6 inches, one bedroom 10 feet 6 inches by 7 feet 7 inches, and another 15 feet 9 inches by 7 feet 10 inches. The ceilings are 10 feet 10 inches in the first story and 10 feet 8 inches in the second story. The annual rental for a house of this kind is 325 francs ($62.73). Similar accommodation in the vicinity would probably cost about 416 francs ($80.29) per annum. The original cost of the lot for this single house was 350 francs ($67.55), and the cost of construction was 3,050 francs ($588.65).

The first house belonging to the bureau was opened for habitation in 1866. It now possesses 493 houses, in four different groups. Most of them are four-room houses, and are each occupied by a single family. Nearly all the rest are six-room houses, there being two families to a house. There are a few houses for four families. Fifty-eight houses have stores or shops on the ground floor.

The total original cost of the property was 3,581,653.23 francs ($691,259.07). There was received as rent during the last fiscal year for which returns were available 182,304.99 francs ($35,184.86). The annual net profit on fiscal operations has been about equal to that derived by the average owner of houses for workingmen, which seems to be between 4½ and 5 per cent. The total amount of borrowed capital is 1,500,000 francs ($289,500), in the form of a municipal loan from the city of Antwerp. On this sum 5 per cent for sixty-six years is paid. This includes both interest and the repayment of the capital sum. About 15 per cent of the lodgings were unoccupied during the fiscal year. Rents are paid weekly or monthly. A deposit of 100 francs ($19.30) is made by a tenant on taking possession. Rentals are usually paid at the office to the agent. Arrearages are allowed only in case of sickness. Nothing was lost from this source during the fiscal year. Fifteen to thirty days' notice is required of intention to leave. If a tenant does not vacate, when notified, within the prescribed period, that is, fifteen to thirty days, according as he pays weekly or monthly rental, and if it is necessary to go to law to evict him, he forfeits his deposit of 100 francs ($19.30). It is believed that 20 per cent of the earnings of heads of tenant families goes for rent. Tenants rarely move except when forced by circumstances. Some have lived twenty-

five years in their houses. On very rare occasions the privilege of subletting or receiving boarders is permitted. The occupations of heads of tenant families appear in the following table:

OCCUPATIONS OF HEADS OF TENANT FAMILIES IN HOUSES OF BUREAU OF PUBLIC RELIEF, ANTWERP.

Occupation.	Number.	Occupation.	Number.	Occupation.	Number.
Bakers	4	Gas-office servants	2	Policemen	11
Barber	1	Gas-works employees	14	Porters	2
Block maker	1	Gilders	3	Railroad depot laborers	3
Boatmen	2	Glass workers	2	Railroad porters	9
Bookbinder	1	Goldsmiths	2	Roofers	8
Box maker	1	Government employees	15	Rope maker	1
Brass founders	4	Grocers	2	Sailors	3
Brewer	1	Inspector	1	Sculptors	2
Bricklayers	15	Iron carriers	3	Servants	30
Butchers	2	Iron founder	1	Ship carpenters	5
Cabinetmakers	6	Ironers in laundry	2	Ship stowers	3
Calkers	2	Jailers	2	Shoemakers	20
Carpenters	28	Joiners	18	Shop clerk	1
Carriage smith	1	Laborers, agricultural	9	Shopkeepers	69
Chair maker	1	Laborers, railroad station	2	Silk worker	1
Chandelier maker	1	Laundresses	3	Smiths	15
Cigar makers	16	Lawyers	2	Stonecutters	7
Clerks	3	Letter carriers	5	Stone mason	1
Coal carriers	2	Machinists	14	Street laborer	1
Compositors	3	Magazine keepers	11	Surveyor	1
Confectioners	4	Mail carrier	1	Street railway employee	1
Cook	1	Marble-cutters	7	Tailors	8
Coopers	6	Mechanic	1	Telephone company employees	2
Coppersmiths	4	Messengers	4	Turner	1
Custom-house employees	36	Musicians	2	Umbrella maker	1
Dealer in sand	1	Night watchmen	2	Viticulturists	2
Diamond cutters	7	Organ maker	1	Waiter	1
Distiller	1	Ornament maker	1	Watchman	1
Dock hand	1	Painters	21	Wheelwright	1
Dressmaker	1	Paper hangers	3	Workingmen	204
Firemen	3	Parcel messenger	1	Workingwomen	26
Fitters	3	Pensioner	1	No occupation	1
Foremen	16	Plasterers	6		
Gardeners	3	Plumbers	2		

BUREAU OF PUBLIC RELIEF, WAVRE.

The board of management of the Bureau of Public Relief of Wavre (*Bureau de Bienfaisance de la Ville de Wavre*) commenced the construction of workingmen's houses in 1869. It has built in all 50 houses, 30 situated in the town on rue de la Loriette and 20 in the hamlet of Lower Wavre, ten minutes' walk from the first group. The houses are built alike.

The houses are contiguously located. The frontage of the lot upon which each house is built is 14 feet 1 inch and the depth 53 feet 6 inches. The depth of a dwelling runs to about 26 feet 3 inches. Approximately, 37 per cent of the lot is not built upon. The open space is mainly in the form of a court. Each house has two stories and is constructed of brick. There is a cellar paved with bricks. In every room there is a zinc pipe, with an opening in it near the ceiling, which carries off the bad air through the roof. This pipe is surmounted on the outside by a cap.

Each dwelling has a privy, which is situated outside, at the farther end of the court. The night soil is used for fertilizing the garden. Heating is usually done by oil stoves and lighting by kerosene lamps.

Each house is occupied by a single family, averaging about six persons. Separation of the households is as complete as can be desired. Each of the two bedrooms is used solely as a sleeping room. The size of the kitchen is 13 feet 6 inches by 14 feet 1 inch; the living room, 12 feet 10 inches by 14 feet 1 inch. The two bedrooms are similar in size to the kitchen and living room. The height of the ceiling on the ground floor is 7 feet 6 inches and on the second floor 8 feet 10 inches.

Tenants belong to various occupations. The daily earnings of the heads of families occupying these dwellings are 1.50 francs to 2 francs (29 cents to 39 cents). The rent varies from 120 francs to 144 francs ($23.16 to $27.79) per year, which is about the same as that paid for fairly similar accommodation in the neighborhood. The administration seeks to make the tenant the owner of the house. The rent is figured at the ordinary rate—from 10 francs to 12 francs ($1.93 to $2.32) per month as a maximum. From this rental a sum is reserved to pay 4 per cent on the cost of the house. The remainder is capitalized at 5 per cent and divided into annual installments, which go for the payment of the house. After ten years a tenant can, if he desires, buy the house by paying 4 per cent on the remainder of the annual installments until such are fully paid. Up to 1889 eleven houses had been bought. Allowance is made if tenants fall behind in their payments as a result of sickness or inability to obtain work; only, if the tenant takes two or three years more to pay his annuities, he must pay on the amounts overdue from 3 to 3½ per cent interest.

The original cost of the land upon which the dwellings are situated was 7,250 francs ($1,399.25), of the houses, 83,888 francs ($16,190.38). Four per cent upon the capital invested is the value of the annual net return. Tenants are exempt from the tax on personal property, and they only pay a land tax of 5.35 francs ($1.03) per annum.

There is no loss from unoccupied dwellings, as all the houses are greatly sought after. Rents are paid monthly, in advance, at the banking institution managed by the bureau. Tenants may be six months in arrears before ejectment takes place.

Of the male tenants there were 2 clerks, 35 laborers, 9 factory operatives, and 34 in miscellaneous occupations; of the women there were 2 storekeepers, 55 laborers, and 6 in miscellaneous occupations.

Tenants are not allowed to sublet or to receive boarders.

In 1892, out of a total population of 257 in the group of model dwellings, there were 3 deaths—2 children and 1 man. There were 8 births in the group, all of which were legitimate. During the same year there were 206 births in the town, 17 of which were illegitimate.

The town being small (7,300 population), the occupants of the model dwellings are favorably situated with reference to their work.

VIEILLE-MONTAGNE COMPANY, CHÉNÉE.

This company (La Société de la Vieille-Montagne) has always given much attention to housing its working people. Its operations vary according to local conditions. When the works are near large centers of population, steps are taken to see that working people do not pay too high a rent, and building societies are encouraged. Whenever necessary on account of the remoteness of the works or mines (the company is among the most extensive mining and zinc manufacturing enterprises in the world), houses are constructed from its own funds. These buildings are placed in groups of two or four houses, and are generally built for single families, two being rarely sheltered under the same roof. A small garden is usually attached to each dwelling. Experience has shown that isolation and independence for each household produce the best effects.

A dwelling composed of four rooms, with stable and garden, and a small piece of land for cultivation near at hand, rents for from 80 to 100 francs ($15.44 to $19.30) per year, or considerably less than one-tenth of the wages earned by the head of the family. Rents are paid monthly or fortnightly, and are retained from wages. Boarders may be taken if they are employees of the company.

The sale of liquor is uniformly prohibited in these settlements. The company exercises supervision over its tenants in relation to hygiene. If a house is not well kept, according to the agreement entered into, it may be cleaned and whitewashed at the expense of the tenant.

The company seeks to aid and encourage its employees to become owners of the houses in which they live. Various systems are employed for carrying out this benevolent purpose—(1) land is allotted and sold at a reduced price, while money is advanced for building, repayable during long periods; (2) land may be selected and bought by working people, and the company will then furnish building material at actual cost; (3) houses are built by the company and sold at cost, payable partly in cash and partly in easy installments; (4) local building societies are aided and encouraged by the company. In 1889 1,180 laborers and foremen, being a proportion of 1 in every 6 of the total number of employees, had become proprietors of their homes. The principal works of the company are situated in Belgium, but its housing operations have not been confined to that region. In every place where it has built establishments—in France, in Germany, in Sweden, and in Algeria—it has included housing with its other operations.

IRON AND STEEL MANUFACTURING COMPANY, MARCINELLE AND COUILLET.

A typical dwelling of this company occupies about 496 square feet upon a lot of 3,229 feet area. It is built of brick, two stories high, and surrounded with open space, which is chiefly utilized as a garden. There have been no special attempts to render the building fireproof, except to use incombustible materials in the construction.

The house has a cellar, which is paved with stones and bricks. The privy is situated outside. The system is quite primitive, and fixtures of the simplest kind are used. There is one provided for the use of each family. A stove has been placed in the kitchen, and storage for fuel is provided in the cellar. Garbage is deposited in boxes or piled in a heap, and carried away once a week by the civil authorities. There is no pantry, but a dresser has been fitted up. There are no clothes-presses, but hooks have been fixed in the walls. Lighting is done with oil lamps and heating with coal stoves. The house is provided with plain window shutters. The exterior walls are whitewashed, and the interior covered with cheap wall paper.

The total cubic contents of the house, which is the residence of a single family, is about 9,182 feet. The annual rental paid is 200 francs ($38.60). The rental of similar accommodation in the vicinity would be 300 francs ($57.90) per annum. The cost of the lot is reckoned at 390 francs ($75.27), and the building at 2,608.80 francs ($503.50).

Tenants may become proprietors of the houses they occupy. The sum of 600 francs ($115.80) is paid at the time of assuming occupancy, and 30 francs ($5.79) per month during the following eight years. Four per cent net has been provided for in these operations. No special reservation is made in the deed to the purchaser. The first of the houses in the group was built in 1866. The group now includes fourteen, constructed at a total cost of 36,500 francs ($7,044.50) for buildings, and 5,500 francs ($1,061.50) for land.

The company has control of the houses, and has charge of their repair until the time when all installments have been paid off. If in the meantime the workingman leaves its employment he continues to pay the same as before, except that interest on the remaining payments is calculated at 6 per cent instead of 4 per cent per annum. In case of his death whatever has been paid up is returned to the widow and the house becomes the property of the company.

Taxes amount to 12 francs ($2.32) per house. The taxes on houses rented at a low price are very small in Belgium. By virtue of a recent law the occupants are exempt from the personal tax. In France the system of taxation seems to bear with special weight on small houses, and rather to discriminate against them as compared with larger buildings.

The houses owned by this company are always occupied. Rents are paid monthly at the company's office, when wages are received. Payments are always regular. But one month's notice is required on either side for the severance of relations as landlord and tenant. Where houses are rented, if the tenant leaves the employ of the company he must move out of the house within a fortnight.

The company commenced its housing operations as far back as 1833. It has built in all 156 dwellings, 24 of which had been sold up to 1890. Rents have not been changed in the last ten years.

The average wages per year of the heads of families in the employ of the company are from 1,000 francs to 1,200 francs ($193 to $231.60) in the different departments. From 10 to 14 per cent of the earnings of the heads of families is absorbed in rent. The duration of tenancy is stable, workmen rarely quitting after once becoming installed. Subletting or receiving boarders is not permitted.

The houses are situated conveniently to the working locality of the tenants. A bread oven has been built for every fifteen houses. There is a free municipal library in the vicinity. The company has established infant and primary schools, as well as schools for adults. Schools for music, drawing, apprenticeship, and housekeeping have been established also. There is an old age and accident fund, a savings bank, free medical service, a hospital, and, besides, a few less important accessories which have been originated by the company for the benefit of its working people.

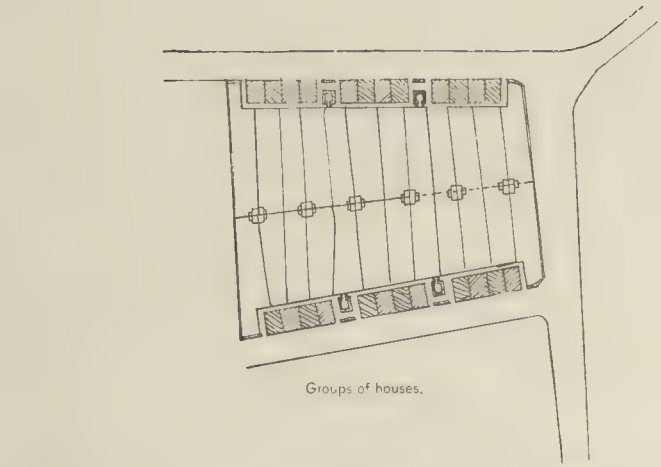
MARIEMONT MINING COMPANY, MARIEMONT AND BASCOUP.

At Mariemont 1,776,049 square feet are given up to 267 houses, and at Bascoup this same company has built 247 houses on plots of ground aggregating 1,184,040 square feet. The houses are generally built in groups of four. The total frontage of each group varies from 78 feet 6 inches to 79 feet 8 inches, or 19 feet 7½ inches to 19 feet 11 inches per house. The depth is usually 24 feet 10½ inches. But a small portion of the ground is covered. The open space is generally at the rear; the most of it is divided among the tenants for garden purposes. Houses have two stories with attic. They are built of brick with cut stone for sill facings of doors and windows. There is a cellar paved with bricks. Houses are built for one family each and contain five rooms. Privies are situated outside and are of primitive pattern. Sewage is carried away by pipes into aqueducts, which are protected by gratings placed at several points. Garbage and ashes are removed by the company.

The prevailing rental for the houses is 7.50 francs ($1.45) each per month. Houses with mansards rent for 8.25 francs ($1.59) per month. Some of the older houses, which are occupied by widows or persons without children, bring from 6 to 7 francs ($1.16 to $1.35). The average rent for like lodging in the vicinity is 15 francs ($2.90) per month.

The first house of the Mariemont Mining Company was opened for habitation in 1840; since then new ones have been constructed at intervals. The last one built at Mariemont was in 1882, and at Bascoup in 1889. They are situated, as a rule, near the mines.

The original cost of the 514 houses, including land, aggregated 1,850,000 francs ($357,050). The annual rent roll amounts to 46,000 francs ($8,878). The company does not sell houses. It prefers to retain them, as it is thereby enabled to reward its faithful employees by furnishing



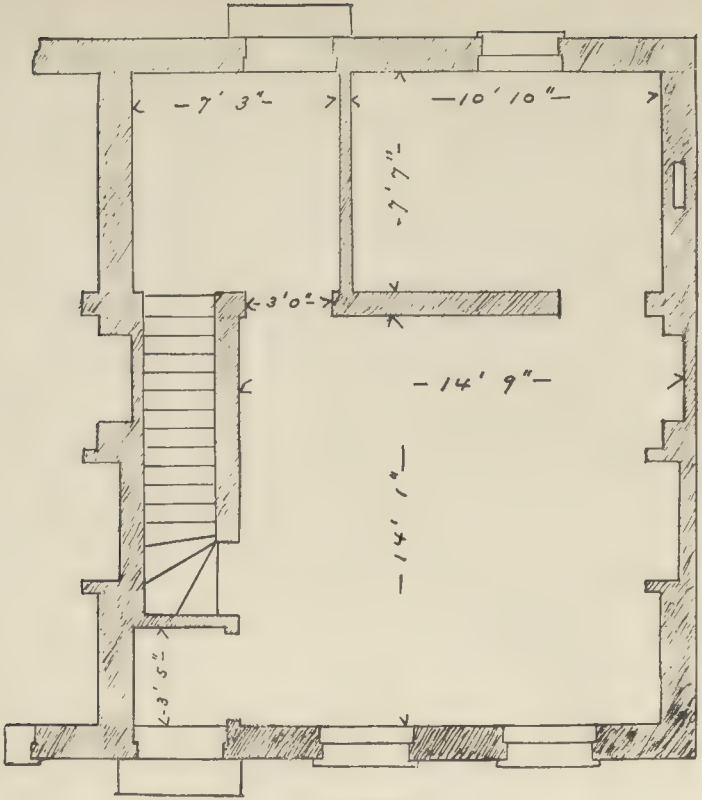
Groups of houses.



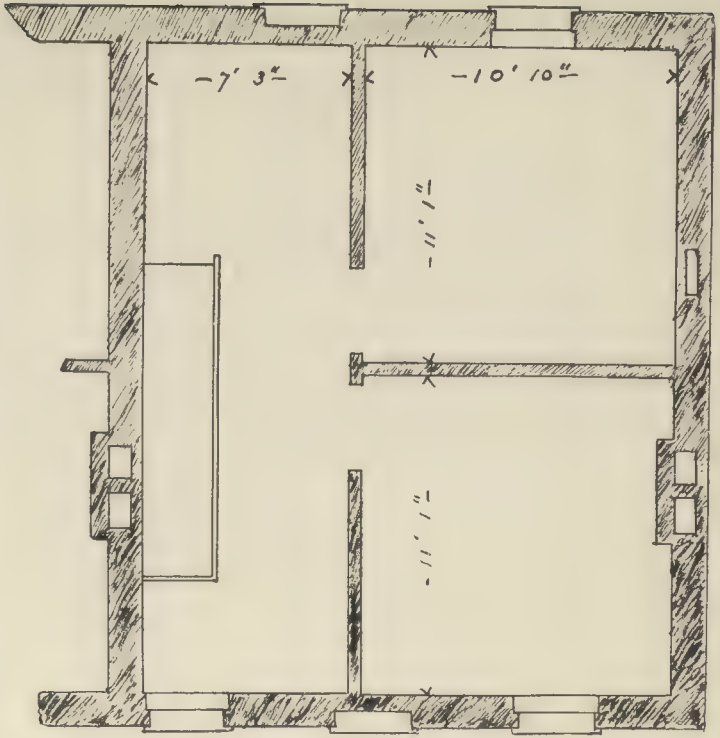
Front elevation.

HOUSES OF THE MARIEMONT MINING COMPANY, MARIEMONT, BELGIUM.

PLAN NO. 68 A.



Ground floor



Second floor

HOUSE OF THE MARIEMONT MINING COMPANY, MARIEMONT, BELGIUM.

PLAN NO. 68 B.

them with good houses at low rent. When any workingman wants to build a house the company advances the money without interest, and deducts the amount from his wages. Twenty per cent of adult workmen employed by the company have become owners of their homes.

Taxes vary from 5 to 6 francs (97 cents to $1.16), according to the style of house, and are paid by the company. Rents are payable monthly, and are deducted from wages. There are consequently no arrears. No provision is made for evicting tenants going on strike, but when they leave the employment of the company they must surrender the houses. Rents have not been raised during the last ten years. Worthy employees only are given the privilege of becoming tenants. They are in the main miners, although some are machinists and other mechanics. Subletting is not allowed, but boarders may be received by permission of the company. Houses are rented upon recommendation of the chief of the division in which the applicant works. They are much sought after because, on account of the low rents, tenants can increase their savings and thus the sooner become owners of homes.

Bread ovens have been erected in the ratio of one to eight households. Bathrooms have been fitted up at the workshops, with hot and cold water.

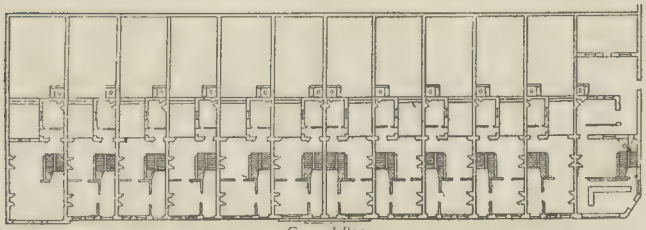
Houses are all constructed according to the type shown in the accompanying plans (plans Nos. 68 A and 68 B).

BRUSSELS WORKINGMEN'S DWELLINGS COMPANY, BRUSSELS.

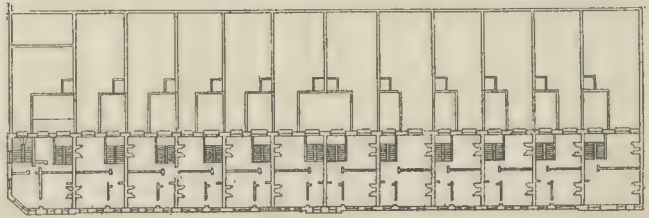
The object of this company (Société Anonyme des Habitations Ouvrières dans l'Agglomération Bruxelloise), which was organized in 1868, is the construction, rental, and sale to workingmen of cheap houses. The present King of the Belgians and his brother are shareholders, and the organization received support from some of the leading financial institutions of the city. Two types of houses have been erected—those in groups of four, surrounded by gardens and each intended for a single household, and those having a number of tenements under the same roof. In the first type each house contains, as a rule, a small cellar, a kitchen, two sleeping rooms, and a garret. In houses of a slightly modified type an additional room is found on the ground floor. In the second type each tenement consists of a kitchen and one or two sleeping rooms. The company has constructed six groups of houses, sheltering 526 families. There are 246 small houses and 24 tenement buildings, and also a row which was purchased already constructed. The rents of the first type of house vary from 3.85 to 5.11 francs (74 to 99 cents) per week; rents in the tenement buildings are from 3.92 to 6.02 francs (76 cents to $1.16) per week. The taxes are very heavy, amounting to 11.56 per cent of the gross rental, supposing all tenements to be occupied. It has been due largely to this fact that the company has not been a success commercially, a small dividend, amounting to about 2 per cent, being the average annual amount paid.



Front elevation.



Ground floor.



Second floor.

CITÉ HOYAUX, MONS, BELGIUM.

PLAN NO. 69

VERVIERS WORKINGMEN'S DWELLINGS COMPANY, VERVIERS.

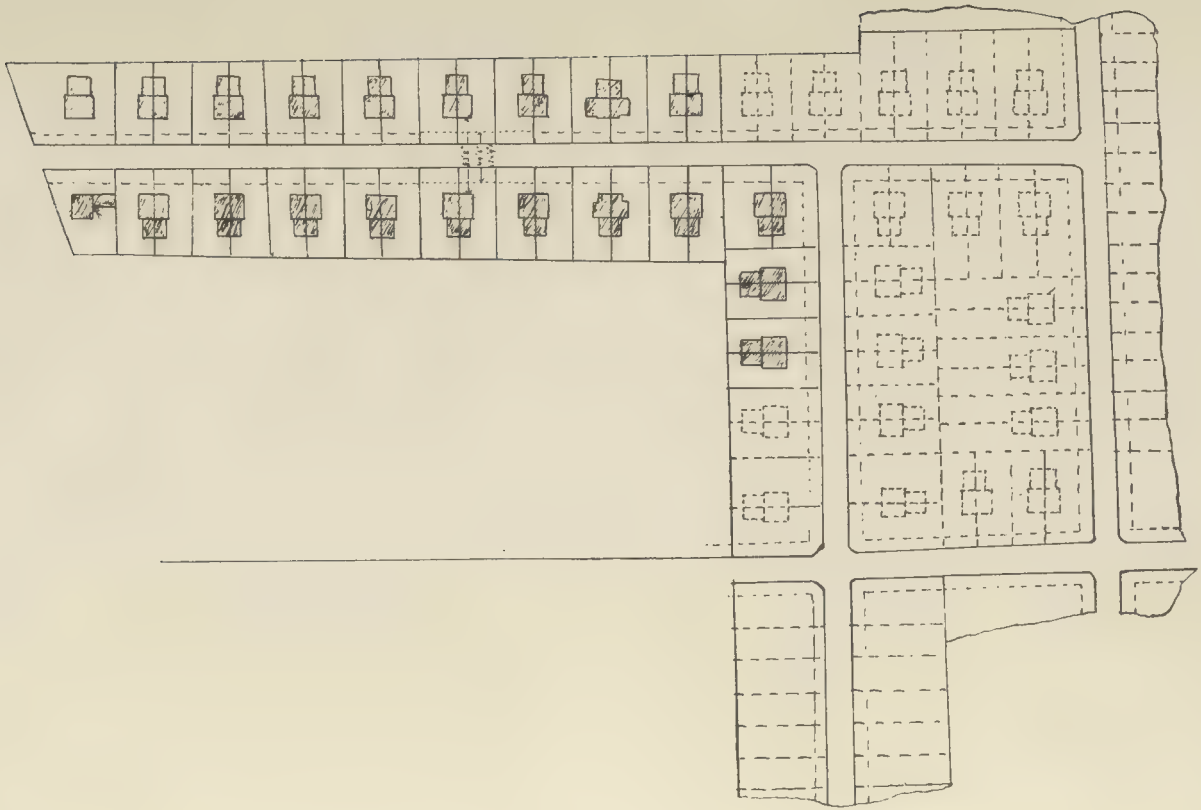
This organization (Société Verviétoise pour la Construction de Maisons Ouvrières) was authorized in 1861. Its capital stock is 1,000,000 francs ($193,000). Its object is the construction of houses to serve as homes for workingmen and the acquisition of existing buildings, their repair and sanitary amelioration. It sells its property on annual payments, or rents the houses. It commenced operations by erecting two distinct groups of houses. The first was situated in the commune of Ensival, near Verviers, and was composed of 16 houses, all of which have been sold. The second group includes 12 one-story houses and a large tenement building. A third group of buildings, comprising 11 houses, was constructed in 1888. With the exception of two years, the association has paid a dividend of 4 per cent annually. The rent of its small houses has been 240 francs ($46.32) per annum.

CITÉ HOYAUX, MONS.

This enterprise, which is entirely a private affair and the work of M. Emile Hoyaux, was commenced in 1881. In all 86 houses, 74 of four rooms and 12 houses with stores attached, have been constructed at a total cost, including value of land, etc., of 514,343 francs ($99,268.20) A fair return is received on the capital. The buildings are of brick, with white stone trimmings, and are built in continuous blocks. All the 74 four-room dwellings are alike. The 12 larger houses with stores are finer and better buildings. They are situated at the corners and in the middle of the blocks, and serve to break the uniformity of architectural outline. Privies have been placed outside the houses. Artesian wells have been sunk, and a laundry, conveniently located, is provided for the free use of occupants. Rents vary from 15 to 18 francs ($2.90 to $3.47) per month. Most of the tenants are employees of the Belgian state railway, at the arsenal of Mons, or machinists and other artisans. Dwellings are not sold to individual occupants. Plans are given herewith (plan No. 69).

GRAND-HORNU MINING AND MANUFACTURING COMPANY, MONS.

The Mining and Manufacturing Company of Grand-Hornu (*Usines et Mines de Houille du Grand-Hornu*), in the neighborhood of Mons, is one of the oldest and most remarkable of the establishments of its kind in Belgium. It was founded in 1810, originally for the purpose of coal mining, but in later years shops for the construction of machinery have been added. Five hundred and fifty workingmen's homes have been built by the company in the neighborhood of the shops. The houses are placed side by side and form a street. All of them have a ground floor and upper story. Gardens are attached to the houses. One family inhabits a single house. The average rent is 2.40 francs (46 cents) per week, and is deducted from wages.

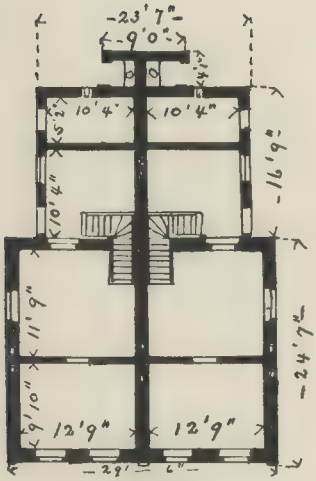


HOUSES OF THE COOPERATIVE BUILDING COMPANY, MÜNCHEN-GLADBACH, GERMANY.

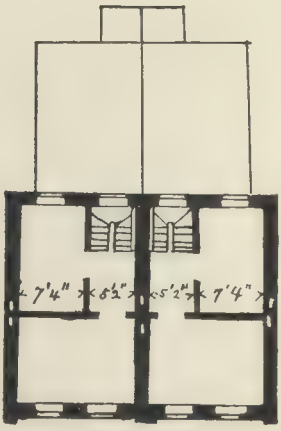
PLAN NO. 70 A.



Front elevation



Ground floor



Second floor

HOUSE OF THE COOPERATIVE BUILDING COMPANY, MÜNCHEN-GLADBACH, GERMANY.

PLAN NO. 70 B.

BOIS-DU-LUC MINING COMPANY, BOIS-DU-LUC.

This is one of the oldest commercial companies (Société des Charbonnages du Bois-du-Luc) in Belgium, its original articles of association bearing date February 14, 1685. In 1838 the company commenced its housing activities, and since that time it has constructed three principal groups of dwellings—one of 166 houses, a second of 85 houses, and a third of 84 houses near the original group. The original group is disposed in four squares—two having an area of 59,094 square feet in the interior courts and the other two having an area of 71,042 square feet in the interior courts. Each house contains four rooms and cellar, and is occupied by one family. A garden, containing 2,691 square feet, is set aside for cultivation by each family, and additional ground may be rented in the neighborhood for raising vegetables and fruit. Good sewerage and water supply systems have been provided. Hot water, which is provided by a condensing engine, may also be had. A house rents for 8.50 francs ($1.64) per month, including supply of gas. The original cost of each house was 1,700 francs ($328.10). The second group of houses is somewhat more expensive, the original cost of each house being 2,200 francs ($424.60). The rent, including gas, is 9.50 francs ($1.83) each per month. In the third group rents vary from 5 francs to 8 francs (97 cents to $1.54) per month, gas not included. A bake oven is supplied for each seven houses in the last two groups. Tenants who leave the employment of the company are not ejected, but their rents are raised 3 francs (58 cents) per month. In all 335 families, comprising nearly 1,800 people, find shelter in the houses of the company. Subletting is permitted where the lodger is in the employ of the company. If he be an outsider the rent is raised 3 francs (58 cents) per month per person lodged. A moderate return upon the capital is received.

In addition to the foregoing there are numerous model enterprises in Belgium which have not been mentioned for lack of space. The principal of these are situated at Alost, Antwerp, Flémalle, Flénu, Ghent, Huy, Isle-le-Pré, Jodoigne, Liege, Marchiennes au Pont, Mons, Morlanwelz, Namur, Nivelles, Ougrée, Quenast, Ruysbroeck, Seraing, Soumagne, Stavelot, Strépy-Bracquegnies, Thy-le-Château, Trooz, Turnhout, Val Saint-Lambert, Verviers, Wetteren, Willebroek, and Wygmael-lez-Louvain.

A statement of the activities of these additional enterprises appears in the interesting work of Baron de Royer de Dour.

GERMANY.

BERLIN BUILDING ASSOCIATION, BERLIN.

The property of the Berlin Building Association (*Baugenossenschaft*), over which Herr K. Schrader, member of the imperial parliament, presides, is situated in the suburbs of Berlin. The company has devoted its efforts to building small dwellings, which it sells to occupants. A double dwelling house, for two families, is selected for description.

It is situated on a lot containing 5,328 square feet. Only a very small portion of this (about one-seventh) is built upon. The remainder is open space in the front and side and a large garden in the rear.

In the construction, which is two stories in height, brick is the material used. There is a cellar with cemented floor. Each family has its own privy, which is situated in an extension at the back. The tub system is employed. Water is supplied by each house having a well. Heating is done with porcelain stoves, and lamps supply lighting. A wash kitchen or laundry and a stable with two stalls are located in an outhouse at the back of the court. An ordinary range has been fitted in each kitchen. Coal is kept in the outhouse.

The houses are plainly built, with no exterior or interior decorations. Only the ordinary conveniences as regards clothespresses, pantries, etc., have been placed in the dwellings. The kitchens are 10 feet 8 inches by 9 feet 1 inch, and two additional rooms on the same floor 15 feet 5 inches by 9 feet 1 inch and 15 feet 11 inches by 13 feet 10 inches, respectively. The ceilings of these rooms are 10 feet 6 inches in height. The total cost of each double house was 8,000 marks ($1,904).

The first house was opened for habitation in 1886. Up to the fall of 1892, 66 houses had been built—26 of which were situated at Adlershof, 24 at Lichterfelde, and 16 at Hermsdorf. All these places are suburbs of Berlin, the first named being about 7 miles from the city. The cost for daily transportation to and from the city is about 50 marks ($11.90) annually for workmen living in Adlershof and Lichterfelde. The journey between Hermsdorf and the city costs 1.50 marks (36 cents) per week for the round trip. There are no workingmen's trains in Berlin of the same kind as in London.

Up to 1892, 750,000 marks ($178,500) had been spent by this corporation for furthering its work. Houses are built for the purpose of sale only. When completed members draw lots for them. Only those members are eligible who have paid at least 50 marks ($11.90) on their shares, who have been members at least one year, and who agree to the terms of the contract. A conveyance is not given unless a cash payment of one-third of the cost price is made. In that case a mortgage will be taken by the association for the remainder. In all other cases the house remains the property of the association until the necessary one-third is covered by installment payments. Until possession of the house is actually obtained a rental, based on the cost price, is paid in addition to the installment payment. Members must themselves dwell in the houses they purchase, and each member may secure but one house. Payments are made quarterly. The annual amount to be paid is 6 per cent on the capital, of which 2 per cent is accounted as a payment on the house. As soon as one-third of the cost price is paid, only 4 per cent is paid annually. Members may pay more than 2 per cent a year if they desire, or they may at other times pay amounts from 10 marks ($2.38) upward on the house, which amounts and payments will be credited to their account. Interest at the rate of 3 per cent on the pay-

ments is credited to the members. The only other method is for the intending proprietor to advance one-third of the purchase money, and then the association builds the house he wants and indorses his paper for a loan from the government insurance fund (*invaliditätsversicherung*), or from two private companies, one of them a life insurance and the other a fire insurance company, who lend money thus. The houses are sold for a trifle more than cost price; that is, about 7½ per cent. Thus, houses costing 8,000 marks ($1,904) sell for 8,600 marks ($2,046.80). The 4 per cent rent is based on this selling price.

Additions or new buildings can not be constructed in front of the building line. The space in front of a house can be used only as a garden. The front fence must be either a hedge or an iron grating, or it may be a wall not over 39 inches high. The land set aside as a private street must always be used as such. Not more than one-third of the ground can ever be built upon. Houses may never have more than three stories, and must be at least 9 feet 10 inches from the boundary line of the neighboring property. All occupations necessitating noise, smoke, unpleasant odors, or things that might be offensive in any way to the neighborhood, may not be carried on in the houses. Drinking places can not be opened except when particularly specified in the contract. The association may require the owner of property to remove any person guilty of a crime or misdemeanor, or whose presence might endanger the reputation of the neighborhood, if such persons are living as lessees in any of the houses. The terms of the contract of sale hold good even after the house is fully paid for.

The assets of the building association January 1, 1892, amounted to 109,603.05 marks ($26,085.53), which consisted of a paid-up capital of 94,956.25 marks ($22,599.59) and a reserve fund of 14,646.80 marks ($3,485.94). Five per cent has been distributed annually as dividends since the association was first organized. Borrowed capital amounts to 30,092.15 marks ($7,161.93), upon which 3½ and 4 per cent interest is paid.

The occupations of heads of families who have acquired property through the association up to 1892 are as follows:

OCCUPATIONS OF HEADS OF FAMILIES WHO HAVE ACQUIRED PROPERTY THROUGH THE BERLIN BUILDING ASSOCIATION.

Occupation.	Number.	Occupation.	Number.	Occupation.	Number.
Agents	3	Foreman, tannery	1	Restaurant keeper	1
Architect	1	Geometer	1	Railway clerks	2
Bank clerk	1	Government employees	5	Salesman	1
Blacksmith	1	Government messenger	1	Sculptor	1
Bookbinders	3	Hairdresser	1	Secretary	1
Bookkeepers	4	Journalist	1	Shoemakers	3
Butcher	1	Laborers	2	Silk dyer	1
Cabinetmakers	8	Leather case maker	1	Silversmith	1
Carver	1	Locksmiths	5	Tailors	3
Compositors	2	Locomotive engineer	1	Tanners	2
Disinfector	1	Machinists	3	Teachers	4
Dressmaker	1	Masons	3	Tinners	4
Draftsmen	2	Musicians	3	Turner	1
Engineer	1	No occupation (invalid)	1	Weavers	2
Foreman	1	Paper hangers	2	Not specified	2
Foreman dyeing establishment	1	Post-office employees	4	Not specified (widows)	2
		Printer	1		

A list of the occupations of shareholders of the association shows that there were 379 factory or industrial workers, 20 domestic servants, 75 government employees, 95 commercial employees, 87 owners of workshops, 40 merchants and shopkeepers, 18 teamsters and saloon keepers, 16 building contractors and manufacturers, 50 teachers, artists, and authors, and 23 functionaries and persons living on their income. Of the 803 members there were 773 males and 30 females.

When a house contains more than one lodging the owner is permitted to sublet the unused part at whatever rent he chooses. The company limits itself to prescribing certain general conditions.

BARMEN WORKINGMEN'S DWELLINGS COMPANY, BARMEN.

The houses belonging to this company (Barmer Bau-Gesellschaft für Arbeiter-Wohnungen) are situated on the Wichelhausberg, Barmen. The average frontage of each lot is 32 feet 10 inches and the average depth 95 feet 2 inches. Four hundred and eighty-seven square feet of superficial area are occupied by the building. The rear space is used as a garden.

The houses are of four types. A double model dwelling house is chosen for description. It is two stories in height and constructed of wood and concrete. The thickness of the external walls is 5 inches. No special arrangements have been made to secure fireproof quality, but the houses are detached. A cellar paved with bricks and cement occupies the entire under space. A single street entrance serves for two families. Each family has a separate privy, which is situated outside. The pit of the privy is cement lined, water tight, and covered with a tight-fitting lid. City water is supplied and the quantity allowed is unlimited. Iron ranges and stoves furnish the means of heating, and gas or oil lamps, at the option of the tenant, the lighting. Cooking ranges are the property of the tenant. There are no inside decorations, and the exteriors are plain.

Each single house contains 2 three-room tenements. The kitchens are 13 feet 4 inches by 7 feet 9 inches, the living rooms 13 feet 4 inches by 8 feet 4 inches, and the bedrooms 13 feet 4 inches by 9 feet 10 inches. The height of the ceilings is from 9 feet 6 inches to 8 feet 4 inches on the second floor and 10 feet 6 inches on the ground floor.

The annual rental is 115 marks ($27.37) per tenement, or about 20 per cent less than for practically similar accommodation in the neighborhood. The tenants are for the most part factory operatives, where the head of the family earns annually from 900 marks to 1,200 marks ($214.20 to $285.60).

The total number of model dwellings in this group belonging to the company is 280, and the first one was opened for habitation in 1872. The original cost was 1,231,000 marks ($292,978). Tenants are allowed to become proprietors upon paying 7 per cent of the purchase money

per annum, in quarterly payments. Five per cent interest is thus provided for.

The total amount of share capital is 750,000 marks ($178,500), all of which has been provided by the stock company. The rate of dividends paid annually has been as follows:

	Per cent.
1872 to 1874, inclusive	4½
1875	3½
1876	3½
1877	3½
1878 and 1879	4
1880 to 1883, inclusive	3
1884	2½
1885	3½
1886 to 1891, inclusive	4

The borrowed capital amounts to 100,000 marks ($23,800), in the form of a municipal loan from the city of Barmen. Three per cent interest is paid on this. The cost of repairs and maintenance is paid by the occupants. There is no particular tax in Barmen having a tendency to favor or retard the erection of model dwellings of this character. There was no loss of rent from unoccupied lodgings during the year for which returns were given. Rents are paid monthly. The rentals in the model dwellings have steadily advanced. The cause of this has been the enhancement in value of the ground. Tenants upon signing the lease must make a deposit, which is augmented every month, and upon the termination of the lease this amount is repaid with interest at 5 per cent per annum. The tenant must give six months' notice of his intention to quit and the proprietor equal notice before proceeding to eject. Tenants are only permitted to sublet upon special written permission, and then only when circumstances justify it.

The majority of tenants work from one-half mile to two miles from their dwellings. Railway and street cars are the means of transportation.

COOPERATIVE BUILDING COMPANY, MÜNCHEN-GLADBACH.

The type of dwelling house belonging to this company (Gladbacher Actien-Baugesellschaft) which has been selected for description has a frontage of 14 feet 9 inches and a depth of 41 feet 4 inches. It is situated on a lot 32 feet 10 inches front by 76 feet 3 inches deep. Plans showing the disposition of this and similar houses, the front elevation, and interior arrangement are given (plans Nos. 70 A and 70 B).

The unbuilt space is used as a court and garden. It is situated in front and at the side and rear. Houses are built of brick, the thickness of the exterior walls being 16 inches. Each dwelling has a cellar paved with bricks. A single street entrance serves for more than one family. There are no means of ventilation provided other

than windows and transoms. There is one privy, situated outside the building, for the use of all occupants of a single house. The number of these ranges from six to twelve. Privies have water-tight pits, with ventilating shaft and a covered seat. There is very little plumbing in the house, and in general water is procured from wells on the outside. Heating is done with iron stoves, and oil is the lighting material used. Iron boxes are used for fuel storage. There is an iron range in each house. Wooden boxes are used for garbage receptacles.

The houses are occupied by factory operatives. Heads of families in four-room tenements earn usually from 800 to 900 marks ($190.40 to $214.20) annually, the total earnings of the family being from 1,700 to 1,800 marks ($404.60 to $428.40).

The yearly rental paid for a four-room tenement is 150 marks ($35.70). Similar accommodation in the neighborhood would cost 192 marks ($45.70). Three-room tenements are likewise occupied by factory operatives. The head of the family earns annually from 700 to 750 marks ($166.60 to $178.50). The annual rental paid for this class of lodgings is 108 marks ($25.70). Fairly similar accommodation in the neigborhood from private parties would cost 144 marks ($34.27).

The model dwellings owned by this corporation were first opened for habitation in 1869. There are in all 413 houses. The total cost of the property, including the land, has been 1,495,280 marks ($355,876.64). The present estimated value of the property is 1,800,000 marks ($428,400).

Tenants may become proprietors of the houses they occupy on the condition that they pay one-twelfth of the cost price annually, in monthly installments, with interest at 5 per cent. The reservation appearing in the deed to the purchaser is that at least a 10-foot space next to the house must be left free from buildings, in order that the cottage feature may be maintained.

The total share capital of this corporation is 330,000 marks ($78,540), and has been subscribed for in the ordinary way, as with joint stock companies. The rate of annual dividend paid on the share capital since the enterprise was founded has averaged $4\frac{1}{5}$ per cent. Dividends are limited to 5 per cent. The total amount of reserve set aside up to the end of the fiscal year covered by this investigation was 36,000 marks ($8,568), none of which had been expended in building other model dwellings. The average annual net profit on the fiscal operations, including both dividend and reserve, has been during the whole period $4\frac{2}{3}$ per cent. The borrowed capital is 490,000 marks ($116,620), and has been secured from the City Savings Bank of München-Gladbach at 4 per cent.

The average of taxes per house has been 15 marks ($3.57) per annum. Under this is included the income tax, the ground and building tax, the rent tax, and the communal tax.

Two per cent of the total lodgings were unoccupied during the last

year for which returns were received, with a resulting loss of 800 marks ($190.40). Rents are paid monthly. The only case where advanced payments are required is where a house is purchased on the installment plan. Rents are not called for by an authorized agent of the proprietor, neither are they retained from the wages, as the occupiers are not employees of the corporation. The tenant is usually allowed to remain in arrears from one to three months. The sum lost through nonpayment of arrears during the year was 400 marks ($95.20). The tenant must give one month's notice of his intention to leave. Before ejectment may take place an order of the court must be obtained and then three month's time is allowed. Owing to the industrial depression and plethora in buildings in Gladbach rents fell during the eighties, but have advanced since 1890.

The average duration of tenancy is about two years. Tenants may sublet and take boarders where they can do so without violating the health laws. Only tenants inhabiting the four large houses built recently, to accommodate from seven to eight families each, are subject to regulations.

The only annexes are the common laundries and drying rooms, which are found in the tenement houses just referred to.

The architecture of the detached houses is varied, and the group, as a whole, forms a very pleasing appearance.

MUTUAL BUILDING COMPANY, LANDSBERG ON THE WARTA.

The frontage of the lot upon which a typical house of the Mutual Building Company (*Gemeinnütziger Bauverein*) is built is 30 feet and the depth 89 feet 8 inches. The building has a frontage of 29 feet 6 inches and a depth of 39 feet 7 inches. The unoccupied space serves as a garden and court. The building is two stories high, and is constructed of stone and cement. The roofing is of tiles. A cellar, with brick pavement, is situated under one-half of the house. A single street entrance serves for four families. Very poor ventilation exists, as the tenements are situated back-to-back. There is a clear open space around the building, however. Privies have been provided outside the building in the ratio of one for every two families, or for every ten to fourteen persons. The ordinary pit is the receptacle for night soil. There are no special sanitary arrangements in relation to plumbing and sewerage. The quantity of water allowed is unlimited. Ordinary earthenware stoves furnish the heating and oil lamps the lighting. A small iron range has been put in each kitchen by the company. Fuel storage exists in separate compartments in the cellar. The garbage receptacle is a brick pit constructed next to the privy. There are no window shutters, porches, or verandas. There has been no attempt at exterior decoration, and the interior walls are simply painted.

There are two tenements, front and back, in each of these houses,

containing three rooms each. The kitchens are 6 feet 7 inches by 13 feet 2 inches, the living rooms 17 feet 11 inches by 13 feet 4 inches, the bedrooms 13 feet 2 inches by 7 feet 5 inches and 7 feet 2 inches, respectively. The ceilings are 9 feet 4 inches high. There is also a stairway corridor 13 feet 2 inches by 6 feet 7 inches. The staircase is 3 feet 1 inch wide.

The rental paid for a three-room tenement of this kind is 104 marks ($24.75) per year. Similar accommodation in the vicinity would probably cost from 130 marks to 156 marks ($30.94 to $37.13). The houses are occupied largely by laborers earning from 600 marks to 800 marks ($142.80 to $190.40) per year.

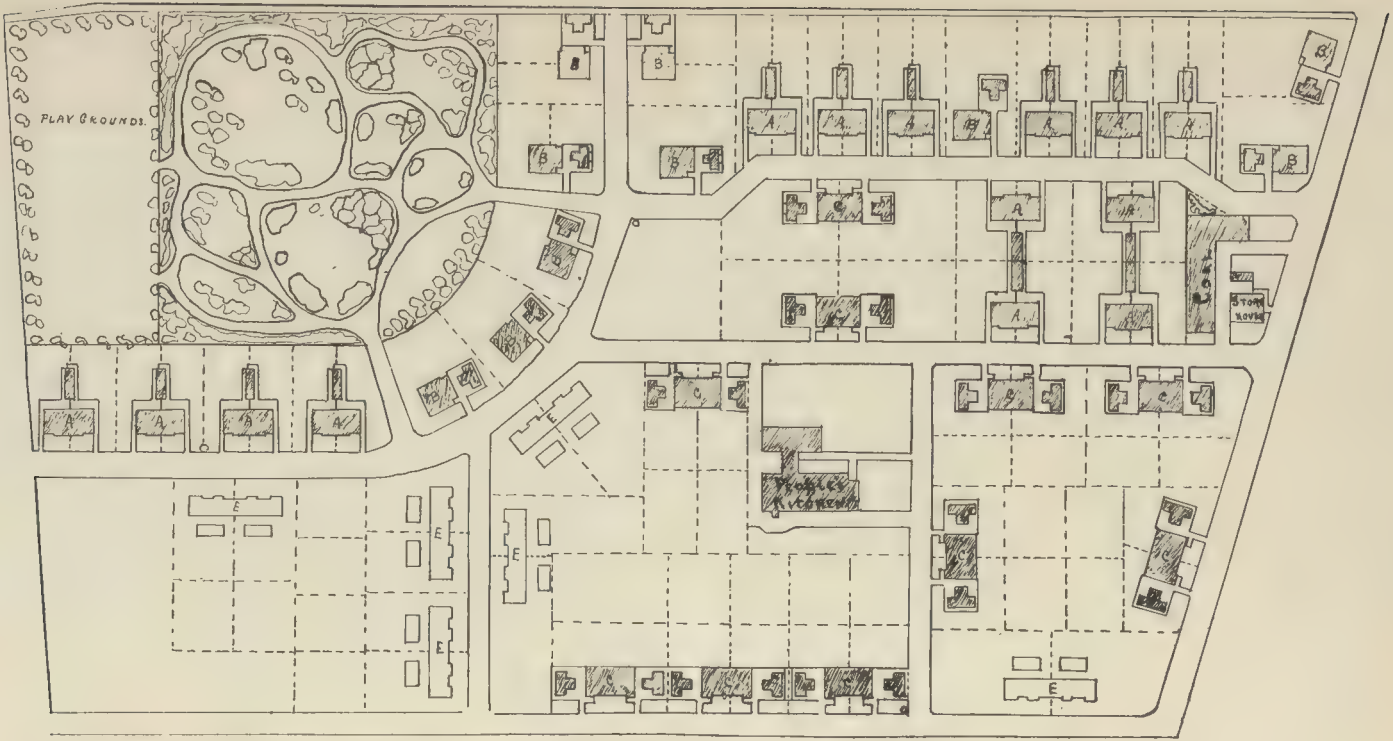
The cost of the lot on which one of these houses is built was 1,700 marks ($404.60); the cost of construction was 7,280 marks ($1,732.64). The first building was opened for habitation in 1889. Tenants may become proprietors by paying from 1,500 marks to 2,000 marks ($357 to $476) cash and the remainder in installments. Four per cent interest is provided for. The deed contains a reservation that the purchaser may not let any of the tenements in the house for more than 2 marks (48 cents) per week as long as he owes 2,000 marks ($476) to the company.

The share capital of this corporation is 100,000 marks ($23,800), of which 50,000 marks ($11,900) have been paid in. It is a joint stock company, where the dividend is limited to 4 per cent. So far the dividends have been small—3 per cent the first year, nothing the second year, and 1 per cent the third year. Including the reserve, 1½ per cent is about the average annual net profit so far made. The total amount of borrowed capital is 41,000 marks ($9,758), mainly from the city bank, secured by a first mortgage on the property. The annual rate of interest paid on borrowed capital is 4 per cent. A building tax of 4 per cent of the rental value and a communal tax of 2 per cent of the rental value are paid.

A little less than 100 marks ($23.80) resulted from loss of rentals of unoccupied tenements during the fiscal year 1891–92. Rents are paid weekly in advance, and are called for by an authorized agent of the proprietor. Arrearages are not allowed unless under exceptional circumstances. Six months' notice of intention to quit is required from tenants, though exceptions to this are allowed. Fourteen days' notice is necessary before proceeding to ejectment. It is estimated that 15 to 20 per cent of the earnings of heads of tenant families goes for rent. The inhabitants of these dwellings live within one-half to a mile and one-half from their work.

A laundry has been provided for every four tenements. The original cost was 300 marks ($71.40). It may be used gratuitously by tenants.

Houses built so far are very similar in their architecture, but in future constructions it is anticipated that the types will be more varied. It is the opinion of the president of this society that in building small houses those which shelter four families are cheapest, and further that working people do not like to live alone in one house.



A and B — Houses for two families and two lodgers each, built in 1891-92

C Houses for four families, built in 1892-93.

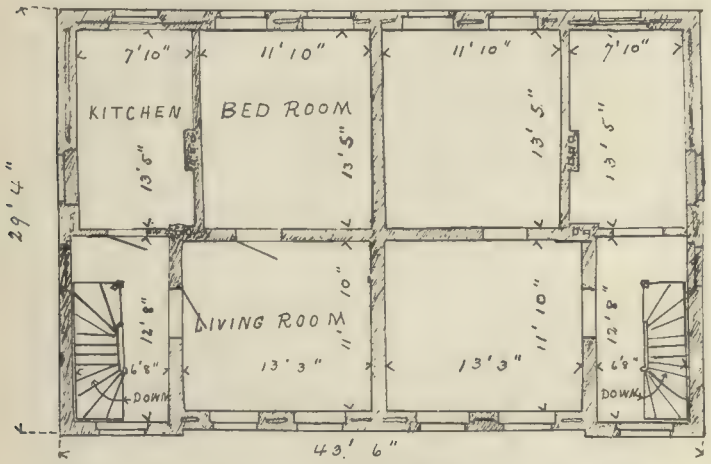
E. Houses for four families and four lodgers each, to be erected in 1893-94

HOUSES FOR EMPLOYEES IN THE MARINE SERVICE OF THE GERMAN EMPIRE, FRIEDRICHSORT, GERMANY.

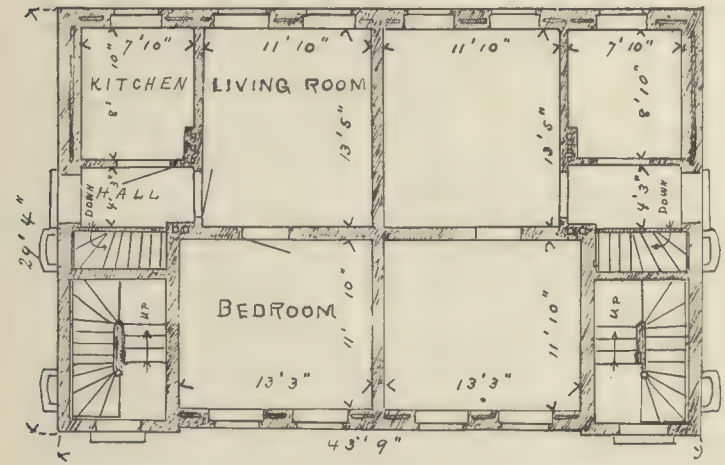
PLAN NO. 71 A.



Front elevation.



Second floor.



Ground floor.

HOUSE FOR EMPLOYEES IN THE MARINE SERVICE OF THE GERMAN EMPIRE, FRIEDRICHSORT, GERMANY.

PLAN NO. 71 B.

MARINE SERVICE OF THE GERMAN EMPIRE, FRIEDRICHSORT.

Buildings have been constructed by the German government for the use of its employees in the marine service. There are several types, one of which, type C, is selected for description. The lot has a frontage of 105 feet and a depth of 144 feet 4 inches. The house and outhouse occupy but 1,987 square feet of the total area of 15,155 square feet. The space not built upon serves in front as a parking and in the rear of the building as a vegetable garden. The house is two stories in height, and is built of red brick and finished with hard wood. No special arrangements have been made in construction to secure fireproof qualities. A cellar has been dug under one portion of the house, and each tenant has a separate space and a separate entrance. The cellar floor is of cement. An entrance has been provided for each family inhabiting the house. A privy, situated outside the building, is provided for each family. There is no pit or privy vault, but a barrel, which is emptied weekly, is placed underneath to receive the refuse. The dwelling has through circulation. There is no water in the house. Well water is used, and this is examined periodically by a bacteriologist. There is a range with a boiler in the kitchen, and a tiled stove in the living room. In houses of types A and B, where lodgers may be taken, the rooms intended for lodgers have iron stoves, provided with a place in which food can be kept warm. A garbage receptacle for each family is placed in the rear of the outhouse. About one-half the houses have clothespresses. Ten of them have verandas. The general plan of the property, showing the disposition of the various houses of the several types in relation to one another, and the front elevation and plans of the two floors in houses of type C are shown (plans Nos. 71 A and 71 B).

Kitchens on the first floor are 8 feet 10 inches by 7 feet 10 inches, living rooms 13 feet 5 inches by 11 feet 10 inches, and bedrooms 11 feet 10 inches by 13 feet 3 inches. On the second floor of this type of house, kitchens are 13 feet 5 inches by 7 feet 10 inches, living rooms 13 feet 3 inches by 11 feet 10 inches, and bedrooms 13 feet 5 inches by 11 feet 10 inches. Ceilings are 9 feet 2 inches in height. On the second floor there is a small hallway which, with the staircase leading to it, occupies a space 12 feet 8 inches long and 6 feet 8 inches wide. The first floor tenements have a small hallway 4 feet 3 inches wide and 7 feet 10 inches long.

This type of house shelters four families, each occupying a three-room tenement. The annual rental paid is 144 marks ($34.27) per tenement. The original cost of the land was 50 pfennigs (12 cents) per square foot, and the house, ready for habitation, 13,600 marks ($3,236.80), exclusive of cost of lot.

The first model dwelling house in the group was opened for habitation November 1, 1891. There are now 34 houses of the various types in the group, providing 40 three-room tenements and 48 five-room tenements. Each of the latter is so arranged as to accommodate two

boarders or lodgers. The total cost of the property has been 484,400 marks ($115,287.20).

The amount of rent received during the fiscal year covered by the last return was 14,976 marks ($3,564.29). Tenants are not permitted to become proprietors of the houses they occupy. They have been built expressly for employees of the torpedo works, and if sold might get into other hands; besides, the people here are not so situated financially that they ordinarily could become proprietors.

One per cent of the cost of building is set aside for maintenance and repairs. The annual net income amounts to about 2 per cent of the capital invested, but it must be noted that all of the land has not yet been built upon. Rents are paid monthly, and are deducted from wages. Four weeks' notice is required on the part of both the tenant and the landlord for severing the relation.

The following table gives the occupations and average annual earnings of tenants:

OCCUPATIONS AND AVERAGE ANNUAL EARNINGS OF TENANTS OF MARINE SERVICE OF THE GERMAN EMPIRE, FRIEDRICHSORT.

Occupation.	Number.	Average annual earnings.	Occupation.	Number.	Average annual earnings.
Draftsman	1	$514.08	Metal workers	15	$285.60
Foremen	11	328.44	Metal workers	2	228.48
Foremen	14	314.16	Miscellaneous	11	271.32
Machine constructors	6	442.68	Miscellaneous	10	257.04
Metal workers	16	299.88	Miscellaneous	2	242.76

About 12 per cent of earnings, on the average, is absorbed in rent. Tenants renting houses of types A and B must agree to take lodgers or boarders, as the houses are built expressly for the purpose of accommodating such persons.

A laundry in the outhouse has been provided for every two families. A public kitchen, costing 15,000 marks ($3,570), has been erected. There is also a playground containing about 4,000 square feet and a park containing about 8,800 square feet. These are situated in a corner of the grounds of the colony. A sea bathing establishment has likewise been erected at a cost of 3,000 marks ($714). A library, containing about 1,000 volumes, has also been opened. The cost was 2,000 marks ($476). The annual expense of maintenance for the bathing house is fixed at 1 per cent of the cost, the public kitchen at 1 per cent, and the library at 10 per cent. The average number of persons making use of these annexes varies, but there is always a satisfactory clientage.

During the year ending November, 1892, the death rate among children under 5 years was 12.2 per 1,000, and among all occupants 18.9 per 1,000. There were fifty births during the year, all of which were legitimate. No criminal convictions occurred among this population during the same period.

MUTUAL BUILDING COMPANY, NEUSS.

A typical model dwelling of the Mutual Building Company of Neuss (*Neusser Gemeinnütziger Bauverein*) is a brick house containing two stories and an attic and a cellar paved with bricks. A privy, placed outside the building, is provided for the sole use of each family. The house contains 2 four-room tenements with corridors. The kitchen is 11 feet 6 inches by 9 feet 10 inches, the living room 11 feet 6 inches by 11 feet 10 inches, the bedrooms 11 feet 6 inches by 9 feet 7 inches and 11 feet 6 inches by 12 feet 3 inches, respectively. The attic space is divided into a small bedroom and a room for storage.

The original cost of the lot was 450 marks ($107.10), and of the building 3,000 marks ($714). In the house which has just been described each tenement rents for 200 marks ($47.60) annually. The probable cost of similar accommodation in the vicinity is 250 marks to 300 marks ($59.50 to $71.40).

The first model dwelling house owned by this company was opened for habitation in 1891. The total number now owned by the company is 23. The architecture of the different buildings is somewhat varied. Tenants may become proprietors by paying the purchase money in monthly installments during a period of ten years. Five per cent interest has been provided for in these installments. The amount of share capital of the company is 64,000 marks ($15,232). Dividends are limited to 4 per cent. A sum amounting to 2,580.35 marks ($614.12) has been set aside as a reserve. Capital to the amount of 30,000 marks ($7,140) has been borrowed of the state bank at Dusseldorf. Four per cent interest is paid on this. The property of this company is exempt from taxation by ministerial decree of July 7, 1892.

There were no losses of rental from unoccupied tenements, or arrearages. Two months is the longest period a tenant may remain in arrears. Rents are paid monthly in advance. Three months' notice is required of intention to quit. Rents consume from 16 to 20 per cent of the earnings of heads of tenant families.

The following are the occupations and average annual earnings of heads of tenant families:

OCCUPATIONS AND AVERAGE ANNUAL EARNINGS OF HEADS OF TENANT FAMILIES IN HOUSES OF MUTUAL BUILDING COMPANY.

Occupation.	Number.	Average annual earnings.	Occupation.	Number.	Average annual earnings.
Bakers	4	$261.80	Laborers	9	$333.20
Barrel finishers	7	476.00	Laborers	7	226.10
Bookbinders	5	333.20	Millers	3	285.60
Firemen	4	285.60	Oil workers	4	333.20
Gardeners	3	238.00	Oil workers	7	285.60
Iron workers	6	285.60	Railway employees	24	238 00
Laborers	9	214.20	Rope makers	4	214.20
Laborers	11	440.30	Tailors	10	285.60
Laborers	4	202.30			

MULHOUSE WORKINGMEN'S DWELLINGS COMPANY, MULHOUSE.

The Mulhouse Workingmen's Dwellings Company (*Société Mulhousienne des Cités Ouvrières*) was founded in 1853 by M. Jean Dollfus. He had made a study in England of the methods of erecting houses to be sold to workingmen, and had returned to his native city profoundly convinced that the acquisition of a healthy home on favorable terms was of incalculable benefit not merely to the workingman but to the employer as well.

Under the direction of M. Émile Muller, architect, M. Dollfus erected four houses of different types at Dornach as an experiment. After a number of months' trial the tenants were consulted as to their preference, with the result that a definite type was adopted, which bears to the present time the name of the "Mulhouse" type. This consists of four houses grouped in the center of a plot of ground, the houses being separated from one another by interior walls running at right angles. Each family possesses an angle of the structure, thus giving two exposures, permitting openings on two sides, and rendering the houses healthful and pleasant. The plot of ground is divided into four equal parts, each adjoining the dwelling to which it pertains.

The ground belonging to each house has an area of 1,722 square feet, and the space built upon covers 347 square feet. The unoccupied land is utilized for garden purposes. The houses of this type are two stories high, the exterior walls having a covering of rough mortar. The window and door sills are of stone. Each house has a frontage of 20 feet 4 inches and a depth of 17 feet 1 inch. The houses are 31 feet high to the ridge of the roof. Each house contains four rooms and an attic and cellar. Water is supplied from wells. The privies are outside the building. The cost of each house was 2,331.50 francs ($449.98), which, added to the price of the land, 160 francs ($30.88), amounted to 2,491.50 francs ($480.86). The annual rent is 187.50 francs ($36.19). The tenants may become proprietors in fifteen years by paying 6 francs ($1.16) additional per month.

A second type of houses at Mulhouse is also built in blocks of four and grouped as those described above, only they are of one story. The ground belonging to each house contains 1,615 square feet, and the space built upon covers 473 square feet of this. Each house has a frontage of 23 feet 5 inches and a depth of 20 feet 2 inches. The houses are 23 feet high to the ridge of the roof. Each house contains three rooms and an attic and cellar. The cost of each house of this type was 2,650 francs ($511.45), and of the land 150 francs ($28.95), making a total of 2,800 francs ($540.40). The annual rent is 168 francs ($32.42). By the payment of 6 francs ($1.16) more per month tenants may become proprietors in fifteen years.

A third type of these houses is built in blocks of four in the center of a plot of ground and grouped as in the preceding types. The houses

are two stories high, and each contains a kitchen paved with bricks, a living room, two bedrooms, and a cellar and attic. The cost per house was 2,617.75 francs ($505.23).

A fourth type of these houses is built in rows, with gardens in front and courts in the rear. The houses are two stories high, and each set of two is separated from the others by a heavy fire wall extending above the roof. A part of these houses have each a kitchen and four rooms, while others have each a kitchen and five rooms. Each of the corner houses has a kitchen and six rooms. The houses have rear extensions, which contain scullcries and privies. There are attics, which are so arranged that they can be used as bedrooms. The cost of a corner house was 3,500 francs ($675.50); those intermediate, 3,000 francs ($579) each.

A fifth type of houses is built in rows, back-to-back. Each house has a large garden in front extending to the street. The houses are two stories high. The interior arrangement of rooms varies considerably. All the houses have attics. Some have cellars, while others have simply excavations for wine storage. Privies are in the interior. The cost of a corner house was 2,150 francs ($414.95); each of those intermediate, 1,850 francs ($357.05). A house facing south is valued at 200 francs ($38.60) more than one having a different exposure.

Up to June 30, 1877, there had been erected 948 houses. Eleven years later there were 1,124 houses. The capital stock of the society was fixed at 355,000 francs ($68,515), and divided among seventy-one shareholders. A maximum dividend of 4 per cent has been regularly distributed. A decennial report of the operations of the society is made, so that figures later than 1888 are not available; but up to that year the 1,124 houses which had been built were valued at 3,485,275 francs ($672,658.08). At that time 4,584,020 francs ($884,715.86) had been paid by purchasers, and 424,949 francs ($82,015.16) were still due.

A gift of 300,000 francs ($57,900) was made by Emperor Napoleon III in aid of this enterprise. The sum was not placed to the capital fund, but was applied to the construction of streets, sewers, baths, public washhouses, pumps, and planting of trees, expenditures which are generally incurred by municipalities.

In 1877 the houses with ground floor and one story sold for 3,740 francs ($721.82) each; those with the ground floor only for 2,860 francs ($551.98) each. In 1888 the prices were 4,928 francs ($951.10) and 3,036 francs ($585.95), respectively, or an increased cost of about 32 per cent and 6 per cent. Houses of one story only have not been built since 1886, the working people preferring two-story structures with even larger dimensions than the original ones. This is the principal reason for the increased cost. Other improvements, such as replacing wooden with iron fences and drainage of cellars, have also enhanced the price. The society in 1888 had room upon its land for 124 houses additional. After these had been built it purposed going elsewhere, for the land

immediately adjoining had become too valuable to continue operations there. The price per square meter had increased from 44 centimes (8½ cents) to 13 francs ($2.51). Houses are sold on an easy system of gradual payment. The payments are spread over a period of fifteen years, and vary with the amount of rent or value of the house. The society introduced into its deeds of sale various special clauses, such as prohibition of construction of any buildings in the garden, and forbidding the sale or subletting of the property within ten years after the date of the contract. While the first houses built were easily rented, the tenants did not appreciate the advantages of acquisition sufficiently well to purchase. At the end of 1856 only 72 out 232 houses had been sold. A few years afterwards structures were sold in advance while still in course of erection.

An official estimate of the advantages and disadvantages attending the work of this corporation is as follows:

In making the workingman an owner of his house the society has rendered a great service. It has made him a fixed resident; it has attached him to his country; it has made him understand the value of saving, and has created in him the desire for property, habits of perseverance, and has shown the fruitful results of provident effort. But in another way the sale of houses has had an unfortunate effect. The tenants, when they had completely acquired possession, began to abuse their privileges. In many cases houses were mortgaged to usurers and sold. Again, at the death of the head of the family the distribution of the estate among several heirs necessitated the sale of houses, which then passed into unworthy hands, and future tenants were exploited for all that could be gotten from them. Overcrowding has often resulted from the renting of single rooms or dividing one dwelling into two or more tenements. In some cases, in the larger houses, three families have lived in one house—one on the ground floor, one on the floor above, and one in the attic.

The census made in 1884 disclosed the fact that the 1,028 houses then existing sheltered 7,642 people, or 7.4 persons per house. This figure is 50 per cent higher than it should be, especially when it is considered that 364 houses had only a ground floor.

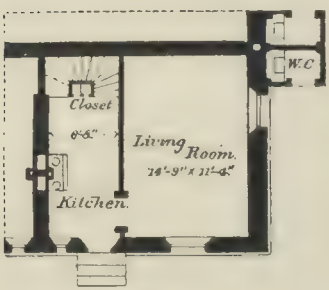
Two of the types of houses at Mulhouse are shown in the accompanying plans (plans Nos. 72 and 73).

FRIEDRICH KRUPP, ESSEN.

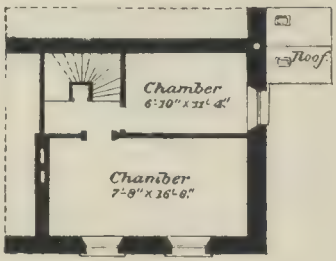
Among the many philanthropic activities of this firm housing plays a very considerable part. The census in May, 1892, revealed the fact that the total number of persons employed was 25,200; the members of their families amounted to 62,700, so that the total population was 87,900. Of this total number 15,300 lived in houses owned by the heads of families and 25,800 lived in houses owned by the company. Houses are not built merely for rental, but money is also advanced to working people who are desirous of building dwellings for themselves. In 1889 Herr Friedrich Alfred Krupp set aside 500,000 marks ($119,000) for the purpose of making loans to his employees earning



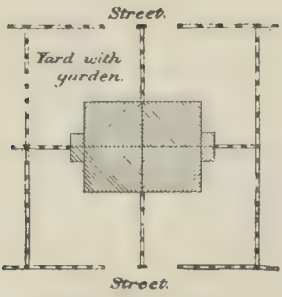
Elevation.



First floor.



Second floor



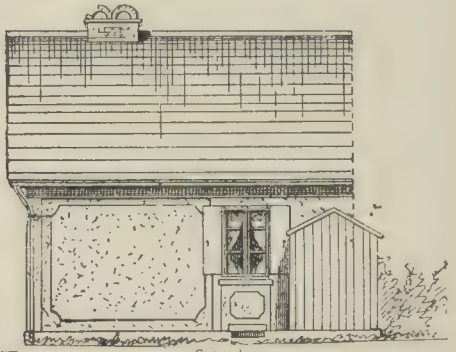
Block plan—four houses in block.

HOUSE OF TYPE 1 OF THE MULHOUSE WORKINGMEN'S DWELLINGS COMPANY, MULHOUSE, GERMANY.

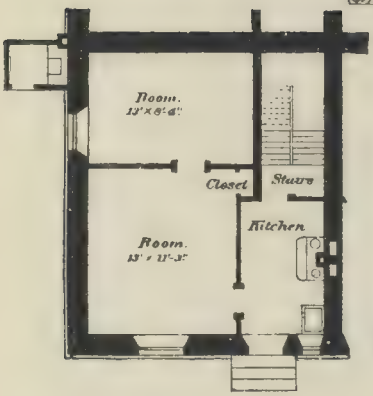
PLAN NO. 72.



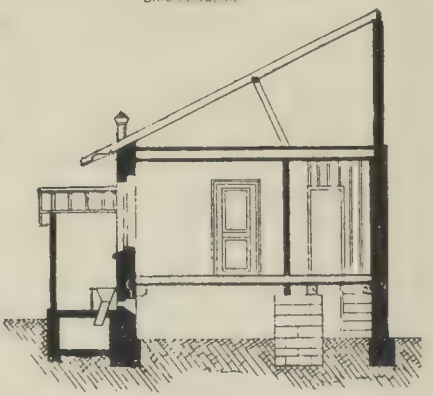
Front elevation.



Side elevation.



Ground floor.



Section.

HOUSE OF TYPE 2 OF THE MULHOUSE WORKINGMEN'S DWELLINGS COMPANY, MULHOUSE, GERMANY.

PLAN NO. 73.

under 3,000 marks ($714) per year to build their own homes. This was in addition to continuing the construction of new dwellings for renting. The rate of interest on these loans is 3 per cent, and the technical services of the firm are furnished free. The borrower can build in whatever style he pleases, provided he does not violate any general building regulations. The conditions are that the borrower must make a first payment of at least 300 marks ($71.40), give a mortgage on his property, and provide for the repayment in regular installments during a period of not more than twenty-five years. The workman must have been in the employ of the firm and in good standing for at least three years; he must be married and be between the ages of 25 and 50 years, and he must have completed his term of military service. A few further conditions and exceptions are laid down, but these are of minor importance.

The Krupp firm began building houses to rent to working people in 1861, and have continued the work without interruption until the present time. Three thousand six hundred and fifty nine dwellings, not including 43 which are given free of rent, are now occupied by tenants in Essen and vicinity. The original cost was 1,213,624 marks ($288,842.51) for land and 11,042,451 marks ($2,628,103.34) for buildings. In addition, there are 523 rent bearing dwellings in the vicinity of the mines and at other works outside of Essen, which cost 200,635 marks ($47,751.13) for land and 1,541,700 marks ($366,924.60) for buildings, and 131 dwellings which are given free of rent. The gross rental of the Essen group during the fiscal year 1892 was 484,675 marks ($115,352.65) and the net return 2.1 per cent, without allowance for depreciation. The gross rental from the other groups mentioned was 67,045 marks ($15,956.71) and the net profit 2.58 per cent, without depreciation. This rented property will not be sold to occupants, but all wishing to buy may, under the conditions previously mentioned, obtain advances for building to suit themselves.

The rented houses are extremely popular, and when dwellings are vacated applicants are so numerous that, as a rule, only such as have been ten years in the company's employ are considered. Seniority, other things being equal, is the ground of preference. The strict regulations, far from being regarded oppressive and as tending to keep people away, are considered desirable and necessary by the better class of working people. Tenants are required to vacate their dwellings when they leave or are expelled from the firm's employ. Changes in tenancy during the years 1889, 1890, and 1891, show that out of 3,659 leaseholders 43 were dismissed for quarreling, for improper conduct, for carelessness with fire, and for dishonesty, and 70 vacated their dwellings because of dismissal from the service, from having been pensioned, or from having acquired homes of their own. During the same period 190 voluntarily vacated on account of removal, acquisition of homes of their own, and for other causes. Houses never remain vacant, so that there is no loss to the proprietor from empties. Subletting and taking boarders is per-

mitted, under careful supervision of the firm. The number of boarders and lodgers in 1889, 1890, and 1891, was 139, 238, and 264, respectively.

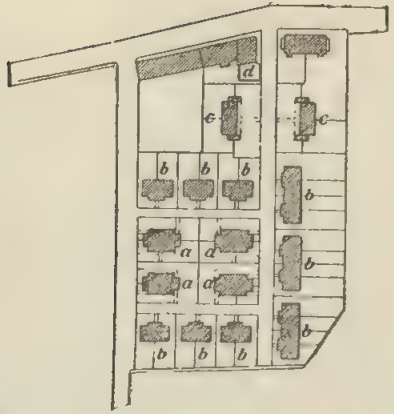
The houses built vary considerably in size. There are tenement houses designed to accommodate twelve families, four on each of three floors. They are not constructed so as to afford through ventilation from front to rear. They have two interior staircases, one at each of the extreme ends of the building. Water-closets are near the entrances, there being four on each floor. They are accessible from the staircase landing, and are completely isolated. Six families use one staircase, reckoning from the ground floor to the highest story. Two rooms in each tenement open to the staircase. There are no hallways or corridors in which people can congregate. Each room communicates directly with the open air. Two dead walls, at right angles to each other, pass through the center of the building, thus separating it into four dwellings on each floor. This gives to dwellings somewhat of the character of back-to-back houses, and the only free circulation of air is in a diagonal direction through the staircase windows and those in the rooms. This type of house is severely plain in outward appearance.

A typical house for four families is shown in the accompanying plan (plan No. 74). The frontage of the lot is 111 feet 7 inches and the depth 78 feet 9 inches. A little over three fourths of the space is devoted to garden and court. The house is two stories high, and is built of stone. The roofing is of tiles, and the steps and window sills are of stone. There is a cellar which is properly paved. Each family has its own entrance. There is a privy for each family in the side extension on the first floor. The sanitary arrangements are somewhat primitive, there being simply a pit. There is an unlimited quantity of water, which is obtained through a service established by the firm. There is a large pantry in the side extension. All rooms have chimney connections. There are no window shutters or porches, and the exterior is quite plain. Ceilings are 9 feet 10 inches high. Kitchens are 6 feet 9 inches by 9 feet 6 inches, living rooms 16 feet 5 inches by 13 feet 1 inch, bedrooms 16 feet 5 inches by 10 feet 1 inch and 9 feet 10 inches by 9 feet 2 inches, respectively. The rentals paid for this accommodation vary from 160 to 180 marks ($38.03 to $42.84) per annum. The original cost of lot and building was 18,000 marks ($4,284).

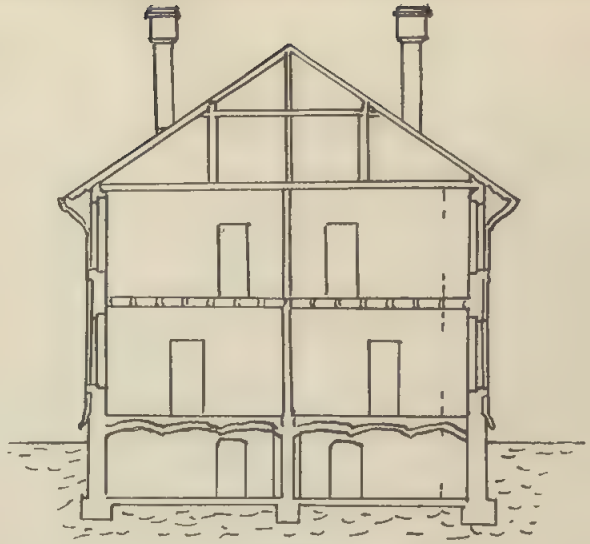
The various institutions established by the firm for the benefit of its working people are too well known to need description, except perhaps the lodging houses. There are two of these, one known as the Freistadt Barracks, the other a general lodging house. The former is a massive structure, containing a vaulted cellar, three stories, and an attic. It has accommodation for 1,200 men. Dining rooms adjoin the kitchen and serve also as sitting rooms. There is a restaurant in the building, where bread, tobacco, beer, etc., are sold, and where newspapers and other reading material are on file. In 1870, when the lack of housing accom-



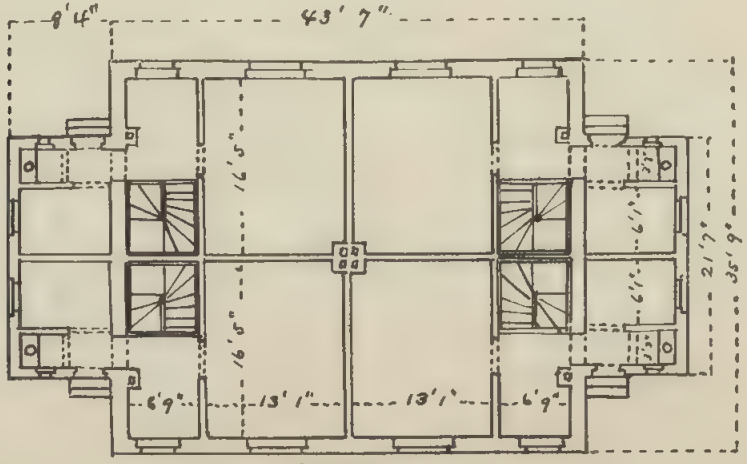
Front elevation.



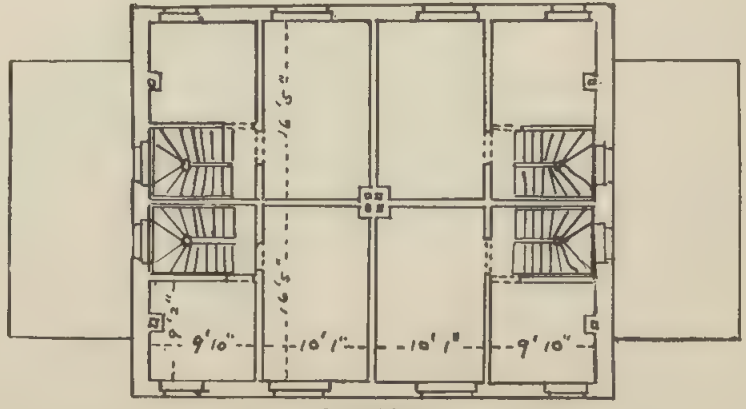
General plan



Section



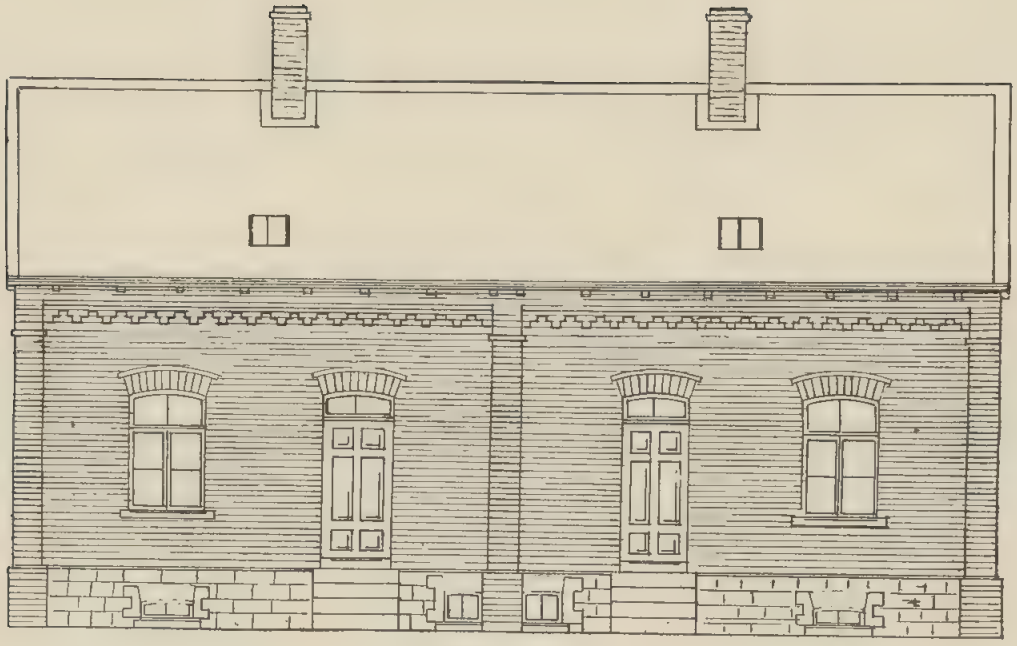
Ground floor.



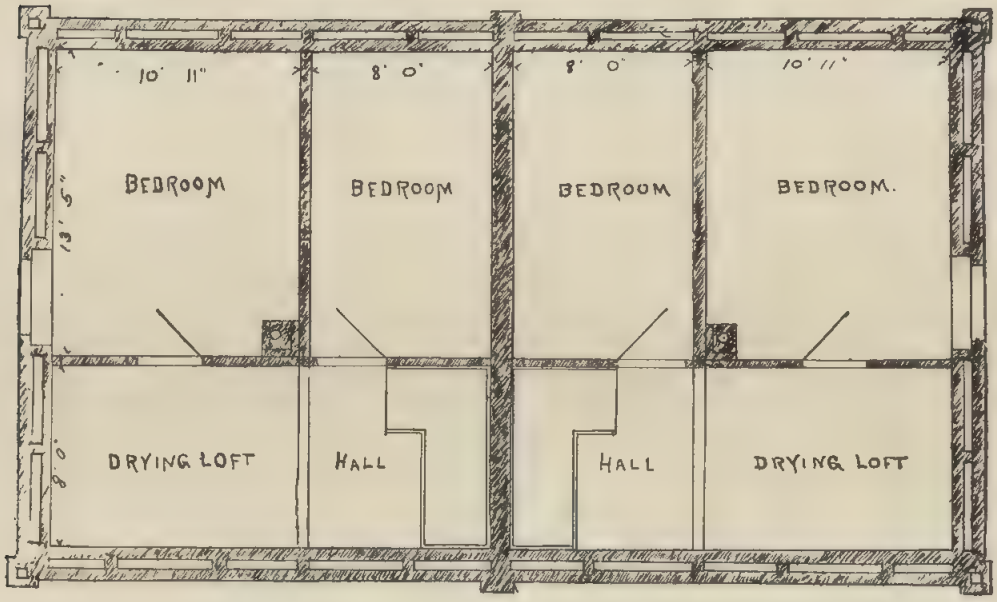
Second floor.

HOUSES IN GROUP "DREI LINDEN," OF FRIEDRICH KRUPP, ESSEN, GERMANY.

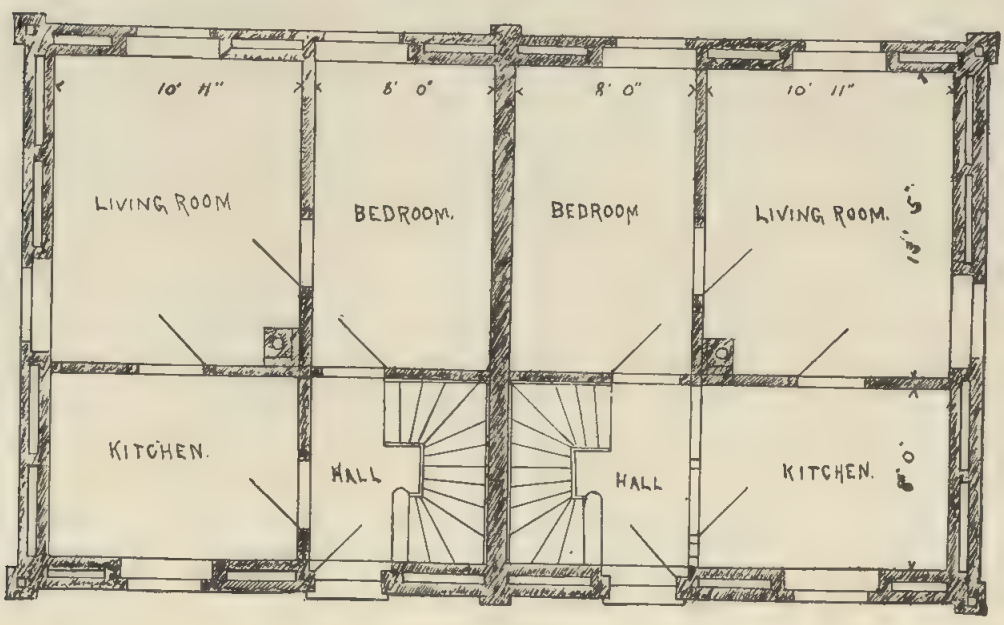
PLAN NO. 74.



Front elevation.



Attic.



Ground floor.

HOUSE OF D. PETERS AND COMPANY, NEVIGES, GERMANY.

PLAN NO. 75.

modation was felt, the company erected a lodging and eating house to accommodate 80 persons. This was subsequently turned over to a lessee, under special supervision. In this institution rooms afford accommodation for one, two, and, at the most, six beds. Board and lodging costs 1.10 marks (26 cents) per head per day. Of this the firm receives 15 pfennigs (3½ cents) for rent of building and use of furniture and utensils.

Only employees of the firm can be received at the lodging houses. Upon entering, each lodger is furnished an iron bedstead, containing a mattress stuffed with sea grass, a pillow made of the same material, two woolen covers, a bedspread and sheet, a pillowcase, a towel, a sponge, and a locker with a key. He is held responsible for these articles. Meals are furnished daily from 11.30 a. m. to 1 p. m. and from 6 to 9 p. m. Coffee and butter are furnished every Sunday morning for the current week. Sitting and eating rooms are open from 5.30 a. m. to 10 p. m.

Lodgers make their own beds before leaving in the morning. The regulation and interior management of the lodging houses are very similar to those at military barracks, even to the extent of appointing orderlies, demanding respect to the latter, levying fines for the violation of rules, etc. The managers are obliged to furnish written reports to the firm, stating the amount of provisions received and consumed, the number of persons admitted to and leaving the lodging houses, persons employed as assistants, servants, and other helpers, as well as an inventory.

D. PETERS AND COMPANY, NEVIGES.

The frontage of the lot upon which a typical house of this company is situated is 39 feet 4 inches and the depth 49 feet 3 inches. A space 21 feet 4 inches by 25 feet 1 inch is occupied by the dwelling. The remainder of the lot, constituting about 73 per cent, is open space, situated at the side and rear of the building. It is used as a garden for vegetables and fruit trees. The house is one and one-half stories high and is built of brick. The cellar is vaulted and paved with bricks. All rooms have through ventilation. There is a privy situated inside the building. A vaulted pit, adjoining the outer wall of the cellar and under the rear end of the building, receives the refuse. Water supply is furnished, and an unlimited quantity is allowed. Heating is done by iron stoves, and lighting by oil lamps. The cooking range, stoves in the living rooms, and lamps are furnished by the tenant. Window and door sills are trimmed with red and black bricks.

The front elevation and interior arrangement of two contiguous houses are shown in the accompanying plan (plan No. 75).

Each house contains five rooms. The kitchen is 10 feet 11 inches by 8 feet, the living room 13 feet 5 inches by 10 feet 11 inches, and a bedroom 13 feet 5 inches by 8 feet. These are on the first floor. The

upper half-story contains one bedroom 13 feet 5 inches by 10 feet 11 inches, and a second one 13 feet 5 inches by 8 feet; also a room used for drying clothes. Ceilings are 9 feet 10 inches high in the first story and 8 feet 4 inches in the upper half-story.

The rental for this type of house is 208 marks ($49.50) annually. Similar accommodation in the neighborhood would cost about 270 marks ($64.26). Rents are fixed at 8 per cent of the value of the house, minus 20 per cent of the annual payments. The original cost of the lot upon which the house is built was 500 marks ($119); the construction cost 3,250 marks ($773.50).

There are 46 model dwelling houses in the group—18 of four rooms, 25 of five rooms, 2 of six rooms, and 1 of seven rooms. The first dwelling was opened for habitation May 1, 1880. The total estimated value of the property is 142,070 marks ($33,812.66).

The rental quoted above includes annual installments paid by occupants, who are obliged to become purchasers. Eight per cent of the value of the house is paid upon assuming possession, and after that 8 per cent annually until the property is paid for. As 5 per cent of this is counted as rent the houses will be fully paid for in seventeen years.

The following deductions are made by the company on the annual payments: When the head of the family has served for one year and over in the employ of the company, 20 per cent of the amount annually due is deducted; when he has served five years and over, 25 per cent is deducted; when he has served ten years and over, 30 per cent is deducted. For every child in the employ of the company one year and over, 5 per cent is deducted. In no case, however, can the total of deductions reach beyond 40 per cent. When the head of the family is not in the employ of the company, but where two or more children are, a deduction is also granted, but the amount is fixed in each individual case. Purchasers are not permitted to use the premises for any other purpose than as a dwelling, and can not utilize any part of the house as a workshop, saloon, store, etc. Neither are they allowed to make any alterations or additions to the building.

The tenant pays the taxes and insurance. Installments are paid quarterly. The cost of maintenance and repairs must be paid by the tenant purchaser, but annually the company voluntarily contributes toward the payment of such items.

The state building tax amounts to 4 per cent of the rental value of the house, and the city building tax to 2 per cent of the rental value. Payments of rent are deducted from weekly wages, but carried quarterly on the books. There have been no arrearages so far. Six months' notice is required of intention to leave, but the proprietor has no right to eject tenants unless they violate the contract. There is no clause giving the proprietor the right to summarily eject tenants in case of strikes or leaving employment. During the past ten years the cost of building material has advanced about 10 per cent, and consequently the payments on new property have been correspondingly raised.

The occupations and average annual earnings of heads of tenant families appear in the following table:

OCCUPATIONS AND AVERAGE ANNUAL EARNINGS OF HEADS OF TENANT FAMILIES IN HOUSES OF D. PETERS AND COMPANY.

Occupation.	Number.	Average annual earnings.
Office employes	4	$523.60
Master weavers	7	273.70
Weavers	35	249.90

From 10 to 15 per cent of the earnings of tenants goes for rent. As a rule tenancy is permanent. Whenever more room is available than is needed for the purposes of the family the tenants may sublet or receive boarders upon special authorization.

All tenants live within half a mile of their places of work. An annex, containing a cooking school for girls, a manual training school for boys, in which cardboard work, modeling, carpentry, turning, and wood carving are features of instruction, a kindergarten, a hall for children's games, a sewing school for girls, a large hall used for reading, musical, and singing societies, and a reading room, with library adjoining, has been opened in connection with this group of model dwelling houses.

A large park, with terraces, groves, and playgrounds, surrounds this building. These institutions are for the free use of employees of the company, whether tenants of its model dwellings or not. They are utilized by 450 workmen and office employees, with their families.

The architecture of the houses is pleasingly varied.

VILLEROY AND BOCH, METTLACH.

Messrs. Villeroy and Boch, who have large earthenware and mosaic works, have built for their working people houses affording accommodation to 152 families, at a total cost, including ground, of 517,263.80 marks ($123,108.78) Of this sum 111,365.39 marks ($26,504.96) had been repaid in installments up to January 1, 1893.

The buildings are one and one-half stories high and have gardens at the sides and rear. The total area of the lot upon which two houses structurally contiguous are placed is 7,535 square feet. Six thousand three hundred and thirteen square feet is used principally as a vegetable garden. The houses are built of sandstone, and the two dwellings are divided by a 20-inch fire wall. Twenty-three feet of open space exists between the different double houses. There is a cellar paved with bricks. One privy for each family is placed outside about 20 feet from the building. On the average seven persons use a privy. The ordinary provision is a water-tight pit, into which ashes and other refuse are also thrown. This refuse is used as a fertilizer. There are no sewerage or water pipes. A well furnishes an unlimited quantity of

water. Heating is done by stoves. Streets are lighted with gas. The dwellings are lighted with oil lamps at the expense of the tenant. A cooking range and two heating stoves are placed in each dwelling. A space in the cellar has been reserved for fuel storage. There is no exterior decoration of any kind, the walls being entirely plain and surmounted by a projecting roof.

Each double house contains 2 four-room tenements, in which the kitchens are 13 feet 1 inch by 9 feet 4 inches, the living rooms 12 feet 2 inches by 12 feet 2 inches, the bedrooms 13 feet 1 inch by 9 feet, and the attic rooms 11 feet 10 inches by 9 feet 2 inches.

The dwellings are occupied by factory operatives, and the average annual earnings of the head of a family range from 750 to 1,200 marks ($178.50 to $285.60). The original cost of the land upon which this type of house is built was 485 marks ($115.43). The house itself cost 2,665 marks ($634.27). The first dwelling was opened for habitation October 1, 1888.

The conditions of tenancy or of purchase of house are as follows:

1. Ground is sold at the actual cost.

2. Five per cent of the cost of the house and lot is paid annually, of which 3 per cent is interest on capital invested and 2 per cent is payment on the principal. This makes the sum required about 50 per cent less than that required for similar lodgings in the vicinity.

3. During the first ten years the house remains the property of the proprietor of the establishment, but the tenancy can only be dissolved during this period if the tenant quits the service of the employer or if he fails to pay promptly.

4. At the end of ten years the tenant can either return the possession of the house to the proprietor and have the money which he has paid on the principal refunded, or he can acquire the house by continuing his payments as during the first ten years. This will, however, be the minimum amount that can be paid annually. The purchase price, which is the original cost of the property, may be liquidated at any time by payment in any amounts the tenant proprietor sees fit to make.

5. The house must serve only for dwelling purposes of the tenant.

6. Ordinary repairs and insurance are paid for by the firm during the first ten years, tenants being held responsible for unnecessary damage. Alterations and additions to the building will be made by the firm if desirable, and the expense charged to the purchase price of the property.

The land and building tax amounts to about 3.60 marks (86 cents) annually. There was no loss of rental to Messrs. Villeroy and Boch from unoccupied houses during the fiscal year in which the inquiry was made, as all were filled. Rents are paid monthly, when accrued. There is a clause in the rental contract giving the proprietors the right of summary ejectment in case the tenant leaves their employment. Rents have neither advanced nor declined since the company commenced business.

A hall for meeting and social purposes has been constructed over a store owned by the firm and situated near the group of houses. This hall may be used gratuitously by the tenants.

There are thirteen different models of houses included in the group, so that the external architectural effect is not monotonous. In the opinion of Messrs. Villeroy and Boch, double houses, with one family occupying each half, are preferable to other types of construction.

NORTH GERMAN JUTE SPINNING AND WEAVING FACTORY, SCHIFFBEK, NEAR HAMBURG.

This establishment (Norddeutsche Jute Spinnerei und Weberei) has expended 400,000 marks ($95,200) in building 166 workingmen's dwellings, with school buildings and other institutions for the benefit of the workmen and their families. It sells houses for an annual payment of 4 per cent for rent, 2 per cent as a payment on the principal, and three-fourths of 1 per cent for expenses. The rents vary from 2 to 3½ marks (48 to 83 cents) per week.

GERMAN PEOPLE'S BUILDING COMPANY, BERLIN.

When a person desires to acquire property from this association (Deutsche Volksbaugesellschaft) he must insure his life in an insurance company selected by the association, the policy to mature at death or on the attainment of a certain age, generally sixty years. He must pay the premiums in advance for at least two years, or must belong to some cooperative company in which the shares are required to be fully paid up. This done, the company buys a site and builds a house in the style the purchaser selects from a large variety of plans. The purchaser, by the contract of sale, at once comes into full possession of the house. Formal transfer, however, does not take place until the expiration of the insurance policy. Either at death or at the end of the endowment period, the property is turned over, free from debt or mortgage, since the insurance company pays the whole amount to the association. If the head of the family is too old, or the state of his health prevents him from obtaining a policy, he can substitute another member of the family to carry the insurance. Insurance policies already held can, under certain conditions, be made use of for this purpose. These preliminaries complied with, the purchaser then pays annual installments as follows:

1. The premium on the amount insured, life as well as fire insurance, the average of which will be, for a period of about thirty years, 3 per cent. If the premium is paid in advance for two years credit for interest for the second year will be given. After the second year the premiums diminish in amount in proportion to the dividend, generally about 15 per cent of the amount being deducted.

2. Interest is charged on the value of the property by the company at 4 per cent, making the total annual cost to the purchaser 7 per cent. The cost of the medical examination is borne by the company. The purchaser pays all legal expenses connected with the acquisition of the

property, and maintenance, repairs, and taxes upon it. Purchasers are also compelled to insure their furniture. As a private owner will not rent property under 7 per cent, gross, of its value, and as the company, on account of its extensive operations, is in a position to buy land cheaper and build at less expense than private individuals, it is readily seen that the amount paid by the acquirer is, in many cases, less than he heretofore has paid for rent. The profits of the company consist of the increased selling price, which is usually about 5 per cent.

The organization is a limited joint stock company, and in July, 1892, had a membership of 117 stockholders, holding 513 shares of 1,000 marks ($238) per share, almost entirely paid up. The company was founded in 1891.

ROYAL PRUSSIAN STATE RAILWAY, LEINHAUSEN, HANOVER.

A group of eighty-six houses (Kolonie Leinhausen) has been built at Leinhausen, near Hanover, for the accommodation of employees of the large railway shops which are situated in that town. The first dwelling was opened for habitation in 1877. A census of the population of this colony when it was visited showed 985 inhabitants. Six-room houses rent for 165 marks ($39.27) annually. The land for each building, after it had been sewered and improved, cost 1,050 marks ($249.90). The building cost 8,300 marks ($1,975.40). There are eight distinct types of houses to suit different classes of people, but only one has been chosen for description. It is built of brick, on a lot containing 3,229 square feet. The frontage of the house is 39 feet 4 inches, the depth 29 feet 6 inches. About 2,067 square feet remain for garden and walk. The kitchen is 13 feet 9 inches by 8 feet 10 inches, the living room 12 feet 6 inches by 11 feet 1 inch, and the bedroom on the ground floor 13 feet 9 inches by 8 feet 10 inches. In the upper story the bedrooms are 11 feet 9 inches by 10 feet 8 inches, 11 feet 9 inches by 8 feet 3 inches, and 18 feet 8 inches by 8 feet 3 inches, respectively. The hall on the ground floor is 6 feet 7 inches by 12 feet 6 inches. There is also a corridor 6 feet 7 inches by 19 feet 3 inches in the attic. The house is provided with a cellar and outside privy. Interior provisions are somewhat meager, there being no cooking range, pantry, or clothes-presses. Rents are payable monthly and are collected by deductions from wages. In the colony there are housed 41 government officials of different grades, 2 teachers, 6 widows of former workmen, and 148 railway shop employees. These latter earn, on the average, 5 marks ($1.19) per day. A cooperative store and savings bank with 470 members have been established.

PRUSSIAN STATE COAL MINES, SAARBRÜCKEN.

At the coal mines belonging to the Prussian government (Saarbrücken Steinkohlenbergwerke) at Saarbrücken money has been advanced and building bonuses offered workingmen already owning sites of ground

free from incumbrances and situated within a specified area set aside for the purpose. Married workmen having good records are eligible. Houses must be built in accordance with certain prescribed regulations. As the original building area was absorbed another plan for assisting employees eligible in the manner above stated was originated in 1865. Loans in amounts up to 1,500 marks ($357) without interest are advanced. At least 10 per cent of the loan must be repaid every year by monthly deductions from wages varying from 3 to 15 marks (71 cents to $3.57). The total number of persons who received building bonuses under the first plan from 1842 to the end of the fiscal year 1890–91 was 5,264 and the total sum so paid 3,787,950 marks ($901,542.10). Two thousand nine hundred and forty-four workmen up to 1890–91 had profited by the second scheme, receiving advances equal to 4,117,050 marks ($979,857.90).

MUNICIPAL MODEL DWELLINGS, DUISBURG.

In 1889 the city corporation of Duisburg constructed 6 six-room houses, each affording accommodation to two families. A single tenement comprises three rooms, in which the kitchen is 10 feet 9 inches by 12 feet 8 inches, the living room 10 feet 9 inches by 12 feet 6 inches, and the bedroom 15 feet 4 inches by 6 feet 9 inches. There is also a corridor 12 feet 6 inches by 3 feet 9 inches, and a staircase corridor 10 feet 9 inches by 6 feet 7 inches. The cost of the lot upon which one of these houses is built was 500 marks ($119), and the cost of the house was 6,262.50 marks ($1,490.48). The houses are occupied by laborers in municipal employ, whose annual incomes vary from 1,000 to 1,200 marks ($238 to $285.60). The sum charged for rent is 120 marks ($28.56) annually to each family. The probable rent of like lodgings in the vicinity would be from 150 to 180 marks ($35.70 to $42.84). The houses are built of brick, and are separated by fire walls. They contain cellars paved with bricks. Each family has a separate entrance, and a privy situated outside the building. The original cost of the whole property, including land, was 37,578.63 marks ($8,943.71). The annual return in rentals is about 4 per cent gross. Rents are payable fortnightly and are retained from the wages. Subletting or furnishing board to outsiders is not permitted.

GERHARD VOM RATH FUND, COLOGNE.

Buildings which are managed somewhat on the Peabody plan were completed in Cologne, Germany, in 1889. They were built with a legacy of 450,000 marks ($107,100), which had been left for the purpose by Prof. Dr. Gerhard vom Rath. The income from this legacy is to be devoted to philanthropic work, in which the laboring people are to be the beneficiaries. Eighty-eight double houses, two stories in height, and placed in groups of five, have been built, all having gardens in the front and courts in the rear.

DENMARK.

WORKINGMEN'S BUILDING SOCIETY, COPENHAGEN.

The Workingmen's Building Society (*Arbejdernes Byggeforening*) was founded in 1865, with 200 members. Each member pays an entrance fee of 2 kroner (54 cents), and may subscribe for 10 shares by paying 35 öre (9¼ cents) weekly during ten years. Should he withdraw before that time he loses one-third of the sum paid in and receives the remainder only after six months have lapsed. Removal being satisfactorily proved, seven-eighths of the sum is refunded, and the whole sum in case of death.

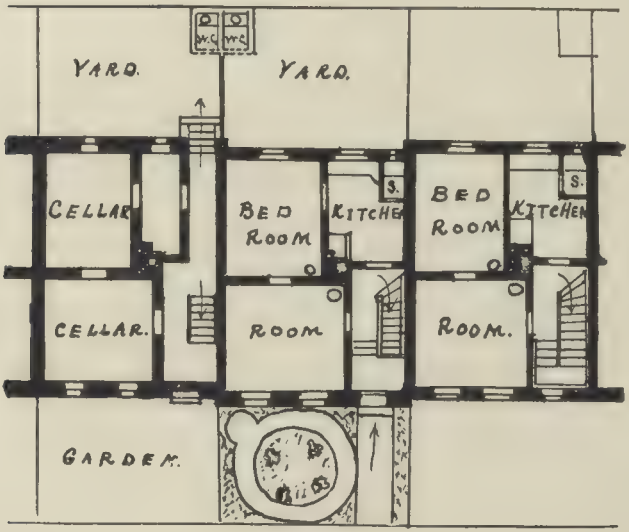
The management is confided to a committee of seven, elected at the general meeting. Disputes are settled by arbitration. The committee makes all appointments of officials necessary to conduct the business, such as architects, legal advisers, cashiers, and other assistants. Under these regulations the society has become extremely popular, and now numbers between 16,000 and 17,000 members. There is a relief fund, which is made up from extraordinary receipts and from donations and which is used for giving loans to owners of houses, particularly to widows, who are suffering temporary financial embarrassment.

During the twenty-five years preceding 1891, 831 houses were completed, at a cost of 6,192,631 kroner ($1,659,625.11). In 1891, 22 houses were in course of construction, 372 houses had been turned over to members, and 140 were entirely paid for. The total population housed by the society approximates 7,000.

The houses erected are of two stories and attic, and accommodate one or two families. They are disposed of by lot among members who have belonged to the society at least six months and have paid in 20 kroner ($5.36). The winner may within a certain time transfer the house to another, who assumes all privileges and obligations. The purchaser pays 6½ per cent of the purchase money per annum as installments, besides interest monthly, which is calculated at 4 per cent. After ten years a deed of conveyance is passed, and the occupant becomes the absolute owner, with the restriction that the character of the house is not to be altered for ninety years.

Accounts of the society are settled annually. After 10 per cent has been set aside for the reserve fund the remainder is divided among the members of six months' standing in proportion to every share paid in full. After the lapse of ten years the sum indicated on the pass books may be drawn, but should the contributing member be awarded a house at any drawing the sum indicated by his pass book is deducted from the price. Houses are sold at a small advance on cost price. The net profits of the company have been about 4 per cent annually. In 1891 the share capital was 2,375,825.79 kroner ($636,721.31). The prevailing type of house is shown in the accompanying plan (plan No. 76).





HOUSES OF THE WORKINGMEN'S BUILDING SOCIETY, COPENHAGEN, DENMARK.

PLAN NO. 76.

The houses are of brick, with slate roofs. A thick party wall divides each house from the one immediately adjoining. Each house has a cellar paved with concrete, with a partition wall in the middle, so that it may be used for two families. The privy is situated outside at the back of the court. The tub system is in use. The kitchen is 9 feet 10 inches by 8 feet, the sitting room 11 feet 8 inches by 12 feet 4 inches, and the bedroom 12 feet 4 inches by 9 feet 9 inches. The corridor leading to the staircase is 13 feet 9 inches by 4 feet 11 inches. The ceilings are 8 feet 3 inches high. The attic contains two rooms, one of which may be used as a bedroom. The other room usually serves for storage. These houses are in great demand; the rent here buys the house, and it is not at all higher than that paid for similar dwellings in other parts of the city. A few of the houses are occupied by workingmen in receipt of small wages, but as a rule the tenants belong to the higher strata of working people. There are also clerks and some inferior grade public officials. The average earnings of heads of tenant families are estimated at about 30 kroner ($8.04) each weekly.

The occupations of those who have acquired homes through the Workingmen's Building Society are shown in the following table:

OCCUPATIONS OF THOSE WHO HAVE PURCHASED HOUSES FROM THE WORKINGMEN'S BUILDING SOCIETY, COPENHAGEN.

Occupation.	Number.	Occupation.	Number.	Occupation.	Number.
Agents	2	Fish dealer	1	Plumber	1
Architect	1	Foremen	8	Police officers	5
Art dealer	1	Fruit dealer	1	Porters	4
Artist	1	Gardeners	4	Printer	1
Baker	1	Glove manufacturer	1	Prison keeper	1
Barber	1	Goldsmiths	3	Private gentleman	1
Beer dealers	2	Government employees	2	Railway porter	1
Blacksmiths	4	Grocers	6	Restaurant keeper	1
Body servant	1	Gun maker	1	Retired saloon keeper	1
Bookbinders	3	Hardware dealer	1	Retired teachers	2
Bookkeepers	4	Harness makers	2	Retired teamster	1
Brakeman	1	Hired man	1	Sailing master	1
Butcher	1	House owner	1	Servants	5
Captains	3	Instrument makers	3	Ship broker	1
Carpenters	27	Laborers	22	Ship builder	1
Carriage manufacturer	1	Laundry owner	1	Shoemakers	9
Carver	1	Letter carriers	8	Shoe manufacturer	1
Cashier	1	Librarian	1	Skippers	3
Chief telegraph operator	1	Lieutenants	3	Slater	1
Chimney sweep	1	Liquor dealer	1	Slipper makers	2
Chiropodist	1	Lithographers	4	Steamship captain	1
Cigar makers	3	Locomotive engineers	3	Steward	1
Civil engineer	1	Machine knitter	1	Stucco worker	1
Clerks	7	Machinists	2	Students	2
Coachmen	2	Manufacturers	7	Superintendents	4
Collector	1	Masons	28	Superintendent of baths	1
Commissioner	1	Master mechanic	1	Switchman	1
Compositors	2	Mates	2	Tailors	7
Constructors	2	Measurer	1	Teachers	3
Coopers	3	Mechanics	8	Telegraph operators	2
Crockery dealer	1	Merchants	21	Tinsmiths	2
Custom-house employees	3	Messengers	7	Translator	1
Diver	1	Mill hand	1	Wagon maker	1
Draftsmen	2	Musicians	12	Waiters	2
Drivers	3	Navy-yard employee	1	Watchmakers	2
Druggist	1	Outrider	1	Wholesale merchants	3
Engineers	10	Pavers	2	Wine dealers	2
Engraver	1	Painters	8	Wood carver	1
Farmer	1	Physicians	2	Wood turner	1
Ferryman	1	Piano maker	1	Not specified (spinsters)	15
Firemen	4	Piano tuners	2	Not specified (widows)	29

The Workingmen's Building Society of Copenhagen has rendered very important service. Its influence has been widely felt, and it has not only furnished healthy homes on a commercial basis, but it has also been able to construct such buildings with a more than ordinary degree of attention to architectural beauty. More than half of the houses have been built between a wide street and the lakes which form the boundary of the city on its northern side.

MEDICAL ASSOCIATION OF DENMARK, COPENHAGEN.

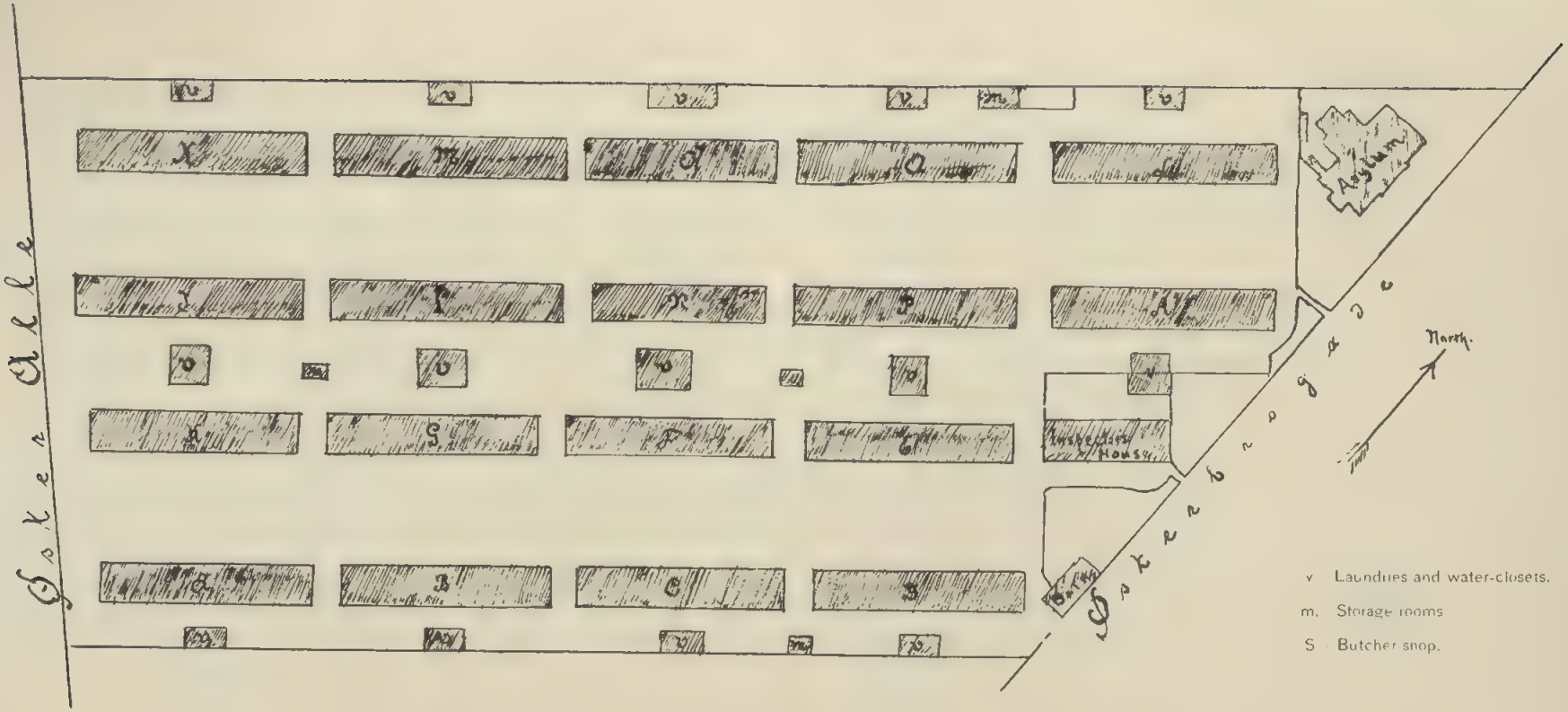
After the cholera epidemic of 1853 there remained at Copenhagen, from subscriptions to aid the distressed and needy, an unexpended balance of 80,000 kroner ($21,440). The Medical Association of Denmark, which was founded about that time, in conjunction with the then existing central committee, took that sum as a nucleus, and proceeded to erect healthy and cheap dwellings for the lower classes, conveniently located in the suburbs of the city. The municipality of Copenhagen and the minister of war sold for this purpose an open space of 39,400 square meters (424,100 square feet) at a very low rate. The work of this association has proceeded until the population housed in 1891 amounted to 2,505. There are 360 one-room, 324 two-room, and 48 three-room tenements provided. The annual rental for the first class varies from 62.40 to 114 kroner ($16.72 to $30.55); for the second class, from 102 to 150 kroner ($27.34 to $40.20); for the third class, from 150 to 174 kroner ($40.20 to $46.63). Plans of one of the groups of houses, together with the details of construction, are shown (plans Nos. 77 A and 77 B).

The houses are two stories high and are constructed of brick. The medical association has no commercial object in view. The proceeds from the rentals over and above what is sufficient to maintain the property in good repair and to pay all taxes and necessary expenses are allowed to accumulate so that the work of model housing may be perpetuated.

HOLLAND.

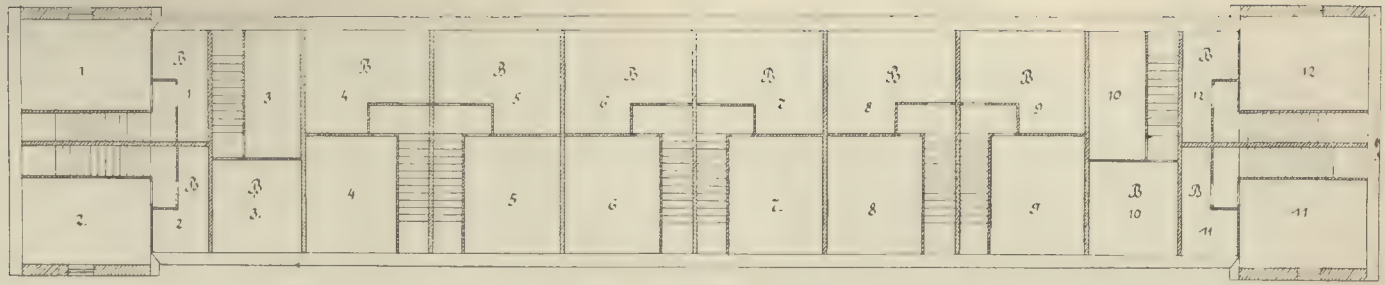
VAN MARKEN MODEL DWELLINGS, DELFT.

Mr. van Marken, director of the distillery and yeast works at Delft, Holland, desirous of providing homes for his employees, bought a tract of land containing 9⅞ acres, which he laid out in the form of an English park. Here were built 80 houses. The proprietor, while not wishing to interfere with the mobility of labor and bind people to their homes by selling separate houses to tenants, and desirous of avoiding complications in case of death when the only possession left to the family was a house partly paid for, yet desiring to give all the benefits of ownership, devised a new plan for disposing of the houses. He formed a cooperative company with a capital of 160,000 gulden ($64,320), to which he subscribed 32,000 gulden ($12,864), or one-fifth of the whole. The remainder of the money needed was borrowed from his friends at 4½ per cent interest upon a mortgage on the property. At first Mr. van Marken

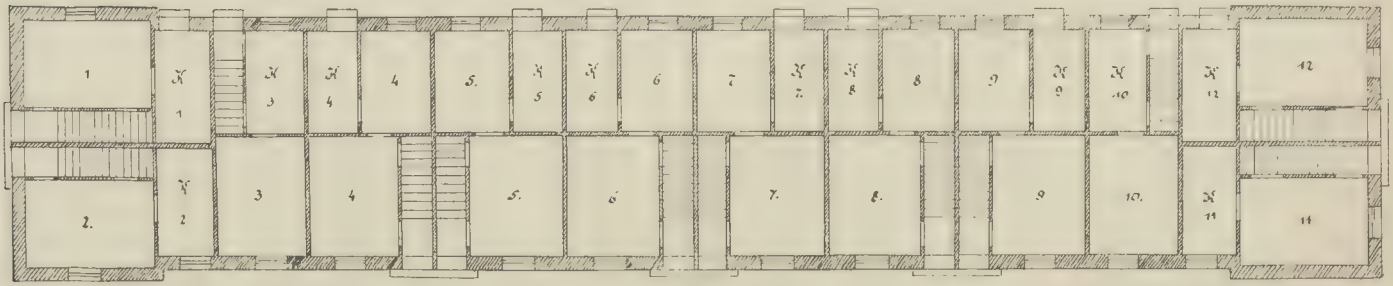


GROUP OF HOUSES OF THE MEDICAL ASSOCIATION OF DENMARK, COPENHAGEN, DENMARK.

PLAN NO. 77 A.



Second floor.



First floor

HOUSES OF THE MEDICAL ASSOCIATION OF DENMARK, COPENHAGEN, DENMARK.

PLAN NO. 77 B.

was the only stockholder, the remaining four-fifths of the shares being unsold, but as the houses were rented at a figure equal to 7½ per cent of their total cost, and as this amount was greater than interest, taxes, management, contribution to reserve fund, and other expenses, the surplus was credited to the tenants, who in this way in time became shareholders of the company. Before obtaining the full ownership of shares of stock they received credit for 3 per cent interest on the money so saved. In the course of time the tenants will in this way come into possession of four-fifths of all the shares of stock.

SWEDEN.

GOTHENBURG SAVINGS BANK, GOTHENBURG.

The Gothenburg Savings Bank devotes a part of its income to the construction of workingmen's dwellings. Operations were commenced in 1869, when the directors voted to set aside an annual sum of not less than 5,400 kroner ($1,447.20) for this purpose. Dividends are limited to 4 per cent. When the house is purchased by the occupant—a feature which is encouraged—the plan adopted by the Workingmen's Building Society of Gothenburg is followed. The first group of houses erected cost 3,700 kroner ($991.60) each, and when purchased required an original payment of 300 kroner ($80.40) and a monthly rental of 23 kroner ($6.16). The second group of houses erected cost 8,700 kroner ($2,331.60) each, and when purchased required an original payment of 400 kroner ($107.20) and a monthly rental of 52 kroner ($13.94), based on a purchase in twenty years' time. Six of these houses have already been acquired by workingmen. The houses of the first group built are of red brick, and are said to be among the prettiest small habitations in the city. More recently the savings bank, instead of continuing its original operations, has purchased shares of the Workingmen's Building Society and cooperates with it in its various enterprises.

WORKINGMEN'S BUILDING SOCIETY, GOTHENBURG.

The Workingmen's Building Society, which came into existence in 1872, was modeled after a Copenhagen institution. The society purchased 80,436 square feet of land, and houses consisting of a ground story of brick and two stories of wood were erected thereon. The houses are all of the same style, and have wooden stairways. Each house contains three tenements. In the attic there are closets for each tenement and a drying loft. The rooms are usually 14 feet 9 inches by 13 feet 9 inches and 8 feet 6 inches high. In 1890, out of 24 of the society's houses, 21 had been fully paid for by occupants. The monthly rent charged is 11 kroner ($2.95) for one room, 15 kroner ($4.02) for one room and kitchen, and 25 kroner ($6.70) for two rooms and kitchen. The purchaser usually occupies one of the tenements and lets the others. In 1890, 674 persons were housed in these buildings. At the outset a dividend of 5 per cent was paid annually, but in 1889 and 1890 this was increased to 6¼ per cent.

GOTHENBURG COMPANY FOR THE HOUSING OF WORKING PEOPLE, GOTHENBURG.

The Gothenburg Company for the Housing of Working People was organized in 1873, and opened its first houses in 1875. In 1892 the total population housed was nearly 2,000. Most of the houses are of brick and of two stories, with attics and cellars. They are built for three families. The rental of a single room is 10 kroner ($2.68) per month; of one room and kitchen, 15 kroner ($4.02) per month; of two rooms and kitchen, 20 kroner to 25 kroner ($5.36 to $6.70) per month. Tenants are encouraged to become proprietors. The sum of 400 kroner ($170.20) is paid down at the time of taking possession, and the balance in monthly installments, varying from 52 kroner to 90 kroner ($13.94 to $24.12), during a period not to exceed twenty years. The purchaser occupies one tenement himself and rents the others. In this way he is easily able to pay for his property in about half the time prescribed. The purchaser is not permitted to erect additional buildings on the lot or to make any changes in the house, except by special permission. He must himself occupy a tenement in the house until it is paid for. The sale of liquor is not permitted on the premises.

From 1873 to 1878 the company paid a dividend of 4 per cent; in 1879 and 1880, 4½ per cent; in 1888, 5 per cent, the maximum allowed.

D. CARNEGIE AND COMPANY, GOTHENBURG.

In 1850 D. Carnegie and Company built 3 tenement houses, furnishing accommodation for about 30 families. A laundry and bakery for common use, situated in the courtyard, were provided. The monthly rent of a tenement was fixed at 7.25 kroner ($1.94.) In 1859 the company erected houses containing 49 tenements, most of them consisting of one room and kitchen each. The rent for these was fixed at 6 kroner ($1.61) per month for accommodation in the attic, and from 7.25 kroner to 7.50 kroner ($1.94 to $2.01) in the first and second stories. The most important group of houses belonging to the company was erected from 1881 to 1886. The cost of these buildings was 307,000 kroner ($82,276). Each house is two stories in height and is built of red brick. There are 26 in all, furnishing 117 tenements, of which 8 are intended for single persons. There is a bakehouse and laundry for every four families. The privies are situated in the yard. The cellars have asphalt floors, and the stairways are of stone. The company receives a dividend on this investment of less than 3 per cent. The houses are much sought after by the workmen, who regard the privilege of living in them as a sort of reward.

CHAPTER XI.

MODEL LODGING HOUSES.

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MODEL LODGING HOUSES.

Model lodging houses fill an important sphere in the housing of working people. A conspicuous service rendered by them consists in securing a reduction of overcrowding. Dr. James B. Russell, medical officer of health for Glasgow, furnishes incontrovertible testimony on this point. In 1872 the percentage of "ticketed houses" in Glasgow in which strange lodgers were found was 71; in 1888 it was 29. In 1871 23 per cent of all the families of the city took lodgers. Of these families with lodgers, 20 per cent were dwellers in one room and 48 per cent dwellers in two-room tenements. "It has fallen," says he, "pari passu, with the increase of these lodging houses." The question of overcrowding is probably the most difficult of all for public authorities to deal with. It is productive, too, of the greatest evils, hygienic and moral. Municipalities abroad may, therefore, have acted wisely in opening model lodging houses and conducting them with financial success, thereby setting an example which private enterprise has not been slow to follow, and, as the experience of Glasgow shows, to even greater advantage. Opponents of state intervention even see some sort of justification for municipalities doing indirectly through lodging houses what can not be effected by direct means.

Outside of Great Britain very little attention seems as yet to have been given to the provision of model lodging houses. In the United States there are few institutions which deserve the name. The lodging house business in America has been left entirely to private enterprise. Special regulations and extra precautions, which sanitary authorities in some of our large cities have felt obliged to make, furnish the most convincing proof that the standard of accommodation has not been very high. The common dormitory has not yet been replaced by the cubicle system, and disciplinary regulations leave much to be desired. The very name of lodging house in many places has come to have a bad odor about it.

BALTIMORE, MARYLAND.

The most conspicuous, if not the only lodging house that can bear comparison with those found in Great Britain, is that recently opened in Baltimore by the well known philanthropist, Mr. Eugene Levering. It is in reality a workingman's residential club, where isolated sleeping apartments may be hired by the night or by the week. Meals are

procurable at moderate prices. There are also excellent bath accommodations and smoking, reading, and game rooms. Workingmen have thus most of the conveniences and accessories of a gentleman's ordinary club. Provision has been made for eighty lodgers nightly, and the prices charged for lodging are from 15 cents to 30 cents per night, or 75 cents to $1.25 by the week. The institution has been open only a little more than a year; hence it is too early to judge of financial possibilities. Mr. Levering, in embarking on the enterprise, calculated upon a commercial return on his investment, and unless the experience of all similar enterprises abroad should be reversed he will get it. The patronage accorded from the outset has been sufficient to pay running expenses, but as yet the place has not become well known. The value of institutions of this sort is very great, whether regarded from the sanitary or moral point of view, and their provision is a work of great public utility.

ENGLISH LEGISLATION.

The original idea upon which the Glasgow lodging houses were founded was that they might become useful in solving difficulties attending the accommodation of a large floating population. This element includes two classes. There is the honest workingman searching for work and without resources, in the meantime confronted with the choice between begging and starvation. For this class charitable agencies can best provide, opening friendly inns where accommodation for a limited period may be furnished to all applicants who are willing to work for it. Tramps, professional mendicants not belonging to any family, criminals, the shiftless, and the idle constitute the second class. They have no desire or intention to work for their accommodation, and by some means or other always find money to pay for it Harboring this class in families speedily brings moral decadence to households and neighborhoods. It would be far better if they could be corralled in municipal lodging houses, where the influences of better surroundings and unbending discipline might reform a few and prevent others from continuing the mischief they now perpetrate. Municipal model lodging houses would naturally be the refuge for a large element in the wayfaring population, and hence they may be made of special use as a disciplinary agency to the unworthy elements among a city's inhabitants. Young men and women not members of local families, or those traveling in search of work and provided with funds, and all laborers of the casual class can best be accommodated in model lodging houses erected by private enterprise, somewhat on the pattern of the Baltimore residential club, opened by Mr. Levering, to which reference has already been made. Congestion in tenement house quarters would thus be greatly relieved, and hygienic and moral improvement would follow.

Lodging houses, unless strictly supervised, are a menace to health and morals. The history of epidemics shows not only a high mortality

among habitués of lodging houses, but, also, that such places may become foci of infection radiating to localities whither clients wander. It was this danger which aroused English authorities to provide, first, adequate inspection, and then stringent regulation. Lodging houses were at first registered and placed under police supervision; then municipalities were led into conducting them, and finally private enterprise has taken up the work with conspicuous success.

The English public health act of 1875 requires that all local sanitary authorities shall keep registers of common lodging houses situated within their districts, of the number of lodgers, and of the names and residences of the keepers. Previous to registration a house has to be inspected and approved by a competent sanitary official. A certificate of character is also required from the keeper, and a sign stating the nature of the premises, for example, "Registered Common Lodging House," must be conspicuously affixed on the outside of the building. The local sanitary authorities are empowered to make by laws—

1. Fixing the number of lodgers and providing for the separation of the sexes.

2. For promoting cleanliness and ventilation.

3. For giving notices and taking precautions in case of infectious diseases breaking out.

4. For making general regulations for the houses.

Walls and ceilings of common lodging houses must be lime washed twice a year, under a penalty of £2 ($9.73) for neglect. Keepers must report beggars or vagrants, if required to do so by the local authorities. Free access may be had at all times to the houses by any officer of the local authorities. A penalty of £5 ($24.33) is levied upon the keeper of a common lodging house for receiving lodgers without registering them, for failure to make report upon the proper schedules of persons resorting to the house after having been required to do so, and for neglect to give notice of infectious diseases.

The local government board has prepared a series of rules for the use of sanitary authorities in dealing with common lodging houses. These call attention to the fact that such institutions may not be registered until they have been inspected and approved by competent officials. Much importance, therefore, is attached to the thoroughness of this inspection. During its progress all details affecting in any way the fitness of the premises should be carefully ascertained. The houses should possess all of the conditions of wholesomeness requisite for dwelling houses, and their arrangement should be specially designed for receiving and caring for a specific number of lodgers. Dry foundations, proper drainage, guttering, and substantial paving to any abutting area or yard are especially enjoined. Trapping and ventilation of sewers and water-closets must be adequate. All waste pipes, from sinks, cisterns, etc., should discharge in the open air over gullies outside of the house. Efficient ventilation of soil pipes, proper disposi-

tion and construction of closets, privies, refuse receptacles, etc., are matters of solicitude.

The water supply must be of good quality. Walls, roofs, and floors are to be kept in good repair. No papering is permitted for inside walls. Proper windows and the disposition of rooms and staircases, so that complete ventilation may be insured, are also required. Rooms without chimneys are to be furnished with special ventilating shafts. Three hundred cubic feet of air space is fixed as the standard for each individual. Kitchens and day room accommodations are required to be separate from the bedrooms. A daily water supply of ten gallons per each registered inmate is recommended where there are water-closets and half that amount where the closets are dry. One closet or privy is required for every twenty registered lodgers. Washing accommodation outside of bedrooms is recommended.

Specific regulations for the administration of common lodging houses are set forth in great detail in the model by-laws of the local government board. This department is also permitted by the act of 1875 to make by-laws where it thinks fit in relation to houses let in lodgings. These by-laws provide for limiting the number of persons who may occupy these lodgings, for separating the sexes, for registering and inspecting such houses, and for enforcing proper drainage, ventilation, cleansing, paving of the courtyards, and notification in case of infectious diseases. The requirements are, to a great degree, similar to those just mentioned in reference to common lodging houses. Families instead of single individuals are more often the lodgers in this class of dwellings.

MUNICIPAL LODGING HOUSES, GLASGOW, SCOTLAND.

The city of Glasgow took the initiative in providing model lodging houses. When the Improvement Trust commenced operations on expropriated areas they found that a large proportion of the dispossessed people were lodgers. Investigation proved that this class of inhabitants was found in 14 per cent of the one-room dwellings, 27 per cent of the two-room dwellings, and 32 per cent of the three-room dwellings of the city. To turn these loose simply meant that they would go to other quarters and there perpetuate the very evils which had brought about expropriation. There was danger, too, that the existing common lodging houses would be so congested as to produce baleful consequences. These considerations, together with the fact that the terms of the trust permitted taking care of displaced people, and also that the lodging house business was known to be an exceedingly profitable one, led the trustees to build their first model lodging house, which was completed February 6, 1871. The work was continued during eight years, and resulted in the establishment of six model lodging houses for men, with 1,967 beds, and one for women, with 125 beds, at a total net cost, on May 31, 1891, of £84,479 15s. 7d. ($411,120.85).

The following table presents the details of cost:

COST OF MUNICIPAL LODGING HOUSES, GLASGOW, SCOTLAND.

Lodging house.	Original cost of—				Date of completion.	Number of beds.	Cost per bed.
	Site.	Building.	Bedding and other furnishings.	Total.			
Drygate house (males)	$7,409.24	$41,641.71	$4,047.00	$53,097.95	Feb. 6, 1871	287	$185.01
East Russell street house (females)	4,686.44	12,421.92	1,087.95	18,196.31	Mar. 13, 1871	125	145.57
Greendyke street house (males)	10,800.45	38,675.74	4,355.25	53,831.44	Nov., 1876	234	207.52
Portugal street house (males)	19,660.66	54,972.92	3,189.42	77,823.00	Oct., 1878	343	226.88
Clyde street (Calton) house (males)	12,000.91	56,623.09	3,325.26	71,949.26	Jan., 1879	350	205.57
North Woodside road house (males)	17,178.77	58,394.67	3,148.34	78,721.78	Apr., 1879	350	215.51
Hydepark street house (males)	21,776.15	48,232.65	3,136.32	73,145.12	Aug., 1879	353	237.18
Total	93,512.62	310,962.70	22,289.54	426,764.86		2,092	
Capitalized value of feu duty, unredeemed:							
Drygate, East Russell street, and Greendyke street houses	5,101.71			5,101.71			
Portugal street, Clyde street, and North Woodside road houses	6,509.96			6,509.96			
Hydepark street house	10,584.64			10,584.64			
Total	22,196.31			22,196.31			
Grand total	115,708.93	310,962.70	22,289.54	448,961.17			
Deduct allowance from revenue for depreciation				37,840.32			
Net cost, May 31, 1891				411,120.85			

The arrangements are such that each lodger has a private compartment with 400 cubic feet of air space. The cubicle system has been chosen—a lodger in one compartment being situated immediately over his neighbor in the other, though entirely separated from him. There are such conveniences as reading rooms, dining rooms, baths, and facilities for cooking and washing. It is customary for lodgers to cook their own meals.

Further description of the accommodations is not necessary, since the accompanying plans (plans Nos. 78 A, 78 B, 78 C, and 78 D) show the elevation and all interior dispositions of one of these buildings.

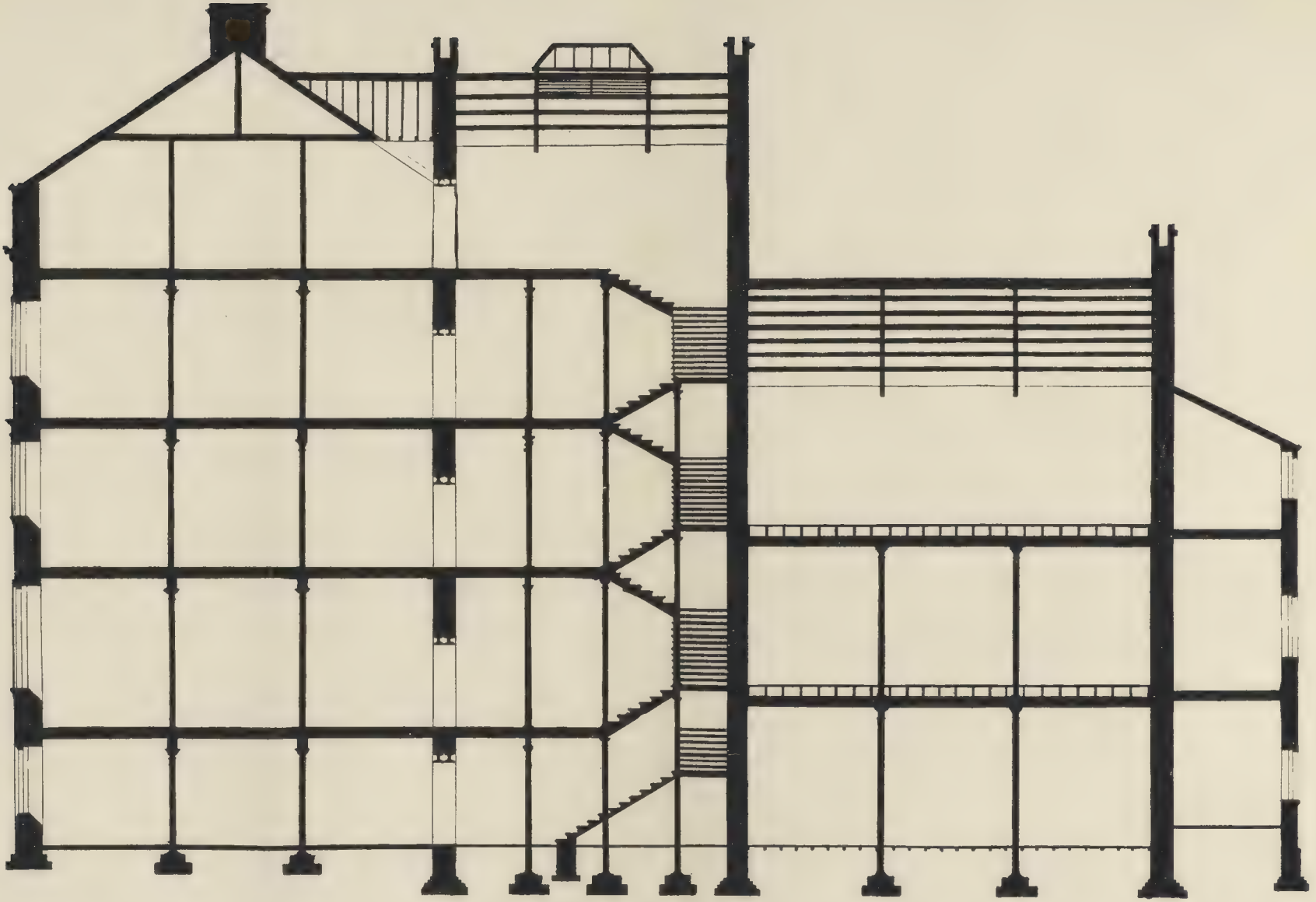
Some surprise may be expressed at the disparity of accommodations furnished for males and for females. It is well to remember, however, that the nomadic element among the latter sex is small in comparison with the former. Furthermore, very great difficulties have been experienced in managing the lodging houses for females. The woman who divorces herself from home life becomes more nearly a social incorrigible than most men similarly situated.

The price of lodging in the municipal model lodging houses is 3d. and 3½d. (6 cents and 7 cents) per night for women and 3½d. to 4½d. (7 cents to 9 cents) per night for men. Financial results have been thoroughly satisfactory. During the fiscal year ending May 31, 1893, the



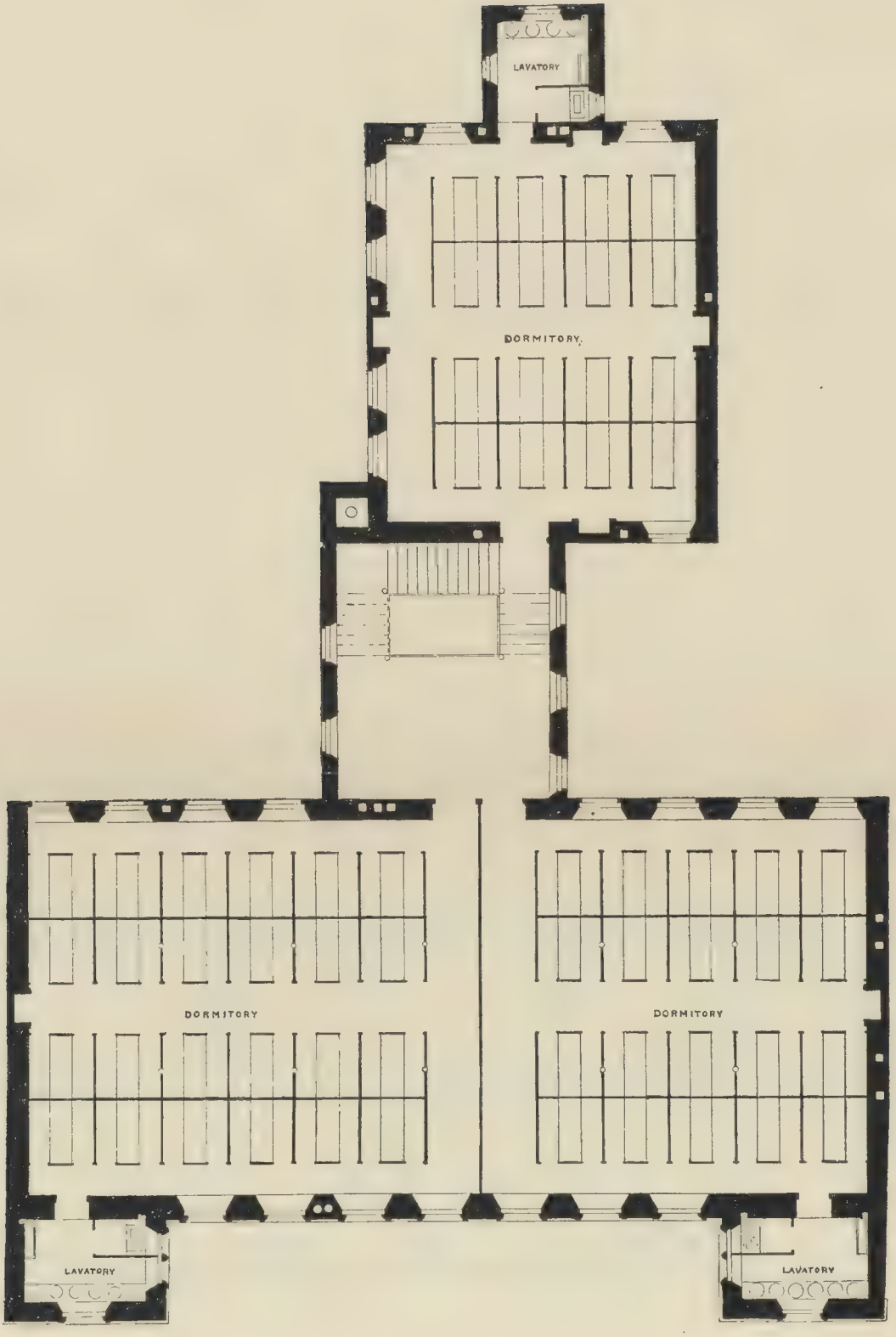
CLYDE STREET MUNICIPAL LODGING HOUSE, GLASGOW, SCOTLAND.

PLAN NO. 78 A.



CLYDE STREET MUNICIPAL LODGING HOUSE, GLASGOW, SCOTLAND.

PLAN NO. 78 B.



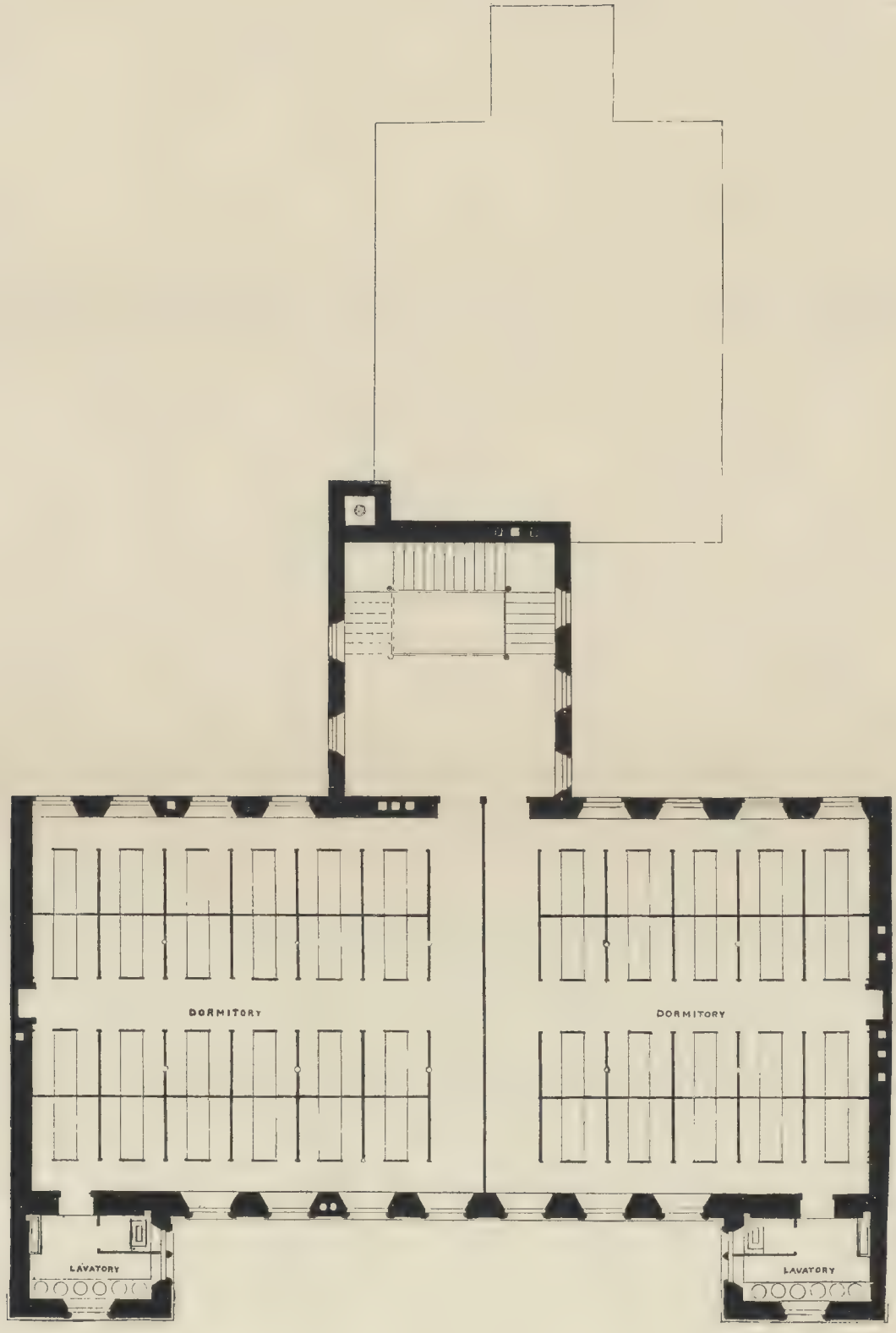
Scale of Feet

0 5 10 20 30

Dormitories—first floor.

CLYDE STREET MUNICIPAL LODGING HOUSE, GLASGOW, SCOTLAND.

PLAN NO. 78c.



Scale of Feet

Dormitories second and third floors

CLYDE STREET MUNICIPAL LODGING HOUSE, GLASGOW, SCOTLAND.

PLAN NO. 78 D.

returns from the seven lodging houses netted the city of Glasgow 5.35 per cent upon the original cost. Up to the same date 10½ per cent of this original cost had been provided for by a depreciation fund, for which a certain amount annually had been put aside.

The following is the number of lodgings furnished by the various lodging houses during the year ending May 31, 1893:

Drygate lodging house	103,323
Greendyke street lodging house	101,259
Portugal street lodging house	124,508
Clyde street lodging house	125,531
North Woodside road lodging house	124,394
Hydepark street lodging house	123,887
East Russell street lodging house (female)	45,392
Total	748,294

The following table shows the price of nightly lodging and the number of lodgers at each price for the same period:

Number of male lodgers:	
At 7 cents	498,150
At 8 cents	16,786
At 9 cents	187,966
Number of female lodgers:	
At 6 cents	36,004
At 7 cents	9,388

The financial success of these enterprises has tempted private parties to enter the business. Lodging house keeping has thus been thoroughly reformed. In 1890 in Glasgow there were registered accommodations for 7,230 sleepers, about three-fourths of which were in model lodging houses belonging to the city and to a single private owner. The moral and social advancement which has followed improvement in lodging house accommodations in Glasgow can not be expressed in figures. The presence of lodgers in the restricted homes of the poor is a standing menace to domestic happiness and a temptation to immoral conduct. Especially are these consequences magnified when the lodger is admitted to share with man and wife, adult sons or daughters, and young children the occupancy of a single room.

The gain to public health has been very great. During the whole period of time in which the municipality's model lodging houses have been in operation they have been almost completely free from infectious diseases. Only in one instance did a succession of cases arise, that when smallpox became established in one of the buildings. Preventive measures of greater thoroughness than could have been used in private lodging houses were at once adopted, and the disease was speedily stamped out. Overcrowding has been greatly diminished. The inspections of "ticketed houses" have revealed this fact. The general social effects of ministering to the needs of the poor in this way have been very satisfactory.

The Glasgow Improvement Trust (which is the mayor and corporation especially empowered for the purposes of the Glasgow improvements act, 1866) have decided to move one step further in advance. They are about to try the experiment of erecting what is to be called a family home, to serve as a boarding house for poor widows with children. There will be play places, besides common cooking and washing conveniences, very much as in model lodging houses.

The following minutes from the meeting of the special subcommittee, held June 22, 1893, set forth the intentions of the council:

The special subcommittee resumed consideration of the proposal to utilize the vacant steading of ground belonging to the trustees on the north side of Saint Andrew's street, containing about 2,000 square yards, by the erection thereon of a building to be used as a family home. The special subcommittee had also again before them the plans, prepared by the city engineer, of the building which it is proposed should be erected upon the ground in question. The value of the site, as estimated by the city engineer, is £6,000 ($29,199), which, at 5 per cent, would represent an annual rent or feu duty of £300 ($1,459.95), and the probable cost of the proposed building, exclusive of furnishings, is estimated at £12,000 ($58,398), which, taken at 3 per cent, would represent a liability of £360 ($1,751.94) per annum. The proposed home will contain 176 dormitories, and it is estimated that the annual revenue will amount to £2,000 ($9,733) per annum, while the expenditure for the upkeep and management of the home (exclusive of the £300 ($1,459.95) and the £360 ($1,751.94) above referred to) is estimated at £1,040 ($5,061.16) per annum. The special subcommittee, having carefully considered the whole matter and the plans now submitted to them, agreed to recommend that the plans be approved and that the trustees should proceed with the erection of the proposed building in conformity therewith.

The basis of the calculated financial result is a charge of 8d. (16 cents) per night. This home is intended only for widows having children and earning from 12s. to 15s. ($2.92 to $3.65) per week. In addition to the 8d. (16 cents) charged nightly for lodging, a sum of 1s. 6d. (37 cents) per week will be exacted for feeding and caring for each child during the mother's absence. It is not intended to provide for married couples. Should this scheme succeed another home may be opened for widowers with children. Before deciding to undertake this project a municipal deputation visited the Familistère at Guise and the municipal day nurseries (*crèches*) at Paris. Work has not yet been commenced, owing to unforeseen difficulties in relation to the site, but there is no question about the enterprise being proceeded with as soon as these can be adjusted.

BURNS' HOMES, GLASGOW, SCOTLAND.

Quite as interesting in every respect as the municipal model lodging houses in Glasgow are those known as Burns' homes. Mr. Robert Burns, the proprietor, was originally a manager of the model lodging houses belonging to the city. Believing that it was possible to still improve on the accommodations and make money out of the invest-

ment, he resigned his public duties about thirteen years ago and established his own houses. He was able to command sufficient capital; and, as he anticipated, his business has continuously prospered. Up to August, 1892, he had opened six homes in different parts of the city, furnishing accommodation for 3,130 persons nightly, and a seventh was in process of construction.

The prices charged for accommodations are the same as at the city lodging houses, except that there is an additional superior grade for which 6d. (12 cents) per night is exacted. The free use of hot and cold baths, with necessary toilet accompaniments, cooking utensils, smoking, recreation, and dining rooms, a laundry, and ample lavatory accommodations are included in the prices charged. There is also a provision shop at which inmates may purchase provisions at low rates. Each home is in charge of a resident superintendent, and Mr. Burns devotes his whole time to seeing that the inmates are properly treated and that strict order and cleanliness are at all times observed.

New buildings have not been erected for these homes. Existing buildings, such as warehouses which could be easily altered and put in proper condition, have been selected. In this way considerable expense has been saved. The reconstruction has been carried out so successfully that the buildings seem as well fitted for the purpose as if they had been originally intended for model lodging houses.

The Watson Street Home (No. 1) was formerly a warehouse, and has been reconstructed at a cost of £4,000 ($19,466). It has a wide corridor and staircase, the walls of which are of glazed brick all the way to the top floor. A lavatory containing hot and cold water appliances, a bath, and a water-closet for night use only, opens to the corridor on each story. The stairways being of cement, a strip of carpet has been placed on them. The carpet also leads to the water-closets, so that men getting up at night need not get their feet cold. A fire-extinguishing apparatus has been placed on each landing.

The ground floor contains a sitting and eating room, meeting hall, kitchen, lavatories, footbaths, water-closets, ticket office, and grocery. The sleeping rooms are on the floors above. The laundries and drying apparatus are in the basement. The sitting room is provided with chairs, benches, and tables, where men can take their meals, read books and newspapers, and amuse themselves at their leisure. Various games are provided without cost. Lodgers can remain here until 10.30 p. m., the gas being kept lighted until that time. In the sitting room there have also been placed lockers, one of which is of sufficient size to hold the belongings of each inmate. By depositing 6d. (12 cents) for a key a man can store away his effects and keep them safe. As the men spend most of their leisure time in the sitting room, it is considered preferable to have the lockers there to having them in the sleeping rooms.

The meeting hall is used for religious exercises on Sundays and sometimes during the week, as well as for free entertainments given by philan-

thropic societies or by the inmates. A neatly carpeted platform, with a piano, is placed at one end of the hall. Chairs and tables are distributed around the room. The entertainments and religious meetings are generally well attended. The office adjoins the entrance and corridor. Adjoining the office is the grocery, where provisions may be bought for meals. There is, however, no restriction as to purchase, and lodgers may buy elsewhere if they prefer. The grocery and office are supervised by the resident superintendent and his wife, and profits from sales belong to the superintendent. The scale of prices is fixed, and articles are inspected by the proprietor.

Adjoining the eating room is the kitchen. Here the men obtain such utensils as they may require for the preparation of their meals. A large range, shaped like a horseshoe, affords sufficient space for a number of men to stand and cook simultaneously. Four hundred persons may be occupied at one time in the kitchen and eating room. To facilitate cooking hot water is always ready. Wash basins are close by, so that the men may wash their hands before eating. Plates and bowls are provided, and the prepared food is then carried to the eating room tables. No meals are cooked by employees of the proprietor.

Before going to the sleeping rooms or kitchen the men are expected to wash and clean themselves. If their clothes are in any way filthy they are compelled to thoroughly wash them before using the beds. The lavatories are supplied with hot and cold water, soap, and other necessaries, and running along one wall is a row of footbaths. These are very popular, and men who have been standing or walking much during the day often spend hours in this room with their feet immersed in the soothing water. The bathrooms are close at hand and may be used without cost. Here, also, hot and cold water are furnished. Water-closets for use during the day are on the ground floor and are of the latest improved style, having an overhead tank with a 2-gallon flush. They are regularly disinfected.

The laundry is provided with a number of bowls or sinks of galvanized iron ware, having a cold water faucet immediately above them. The water is heated by means of a steam pipe, which is so arranged that it may be connected with any one of the bowls and the steam turned on under the surface of the water. By this means water can be heated in about ten minutes. A large saving of hot water from the boilers is thus effected. Clothes are dried in a hot chamber, which is heated to a high temperature by means of steam pipes. The men usually do their own washing, but they may have it done by paying 2d. (4 cents).

The stories above the ground floor are all used for sleeping purposes. The house contains 512 beds. On the average there are 400 regular inmates, and about 50 occasional or transient lodgers. When fairly filled the house pays a net profit of about £500 ($2,433.25) per year. There are four grades of accommodation, namely, beds for 3½d., 4d.,

4½d., and 6d. (7 cents, 8 cents, 9 cents, and 12 cents) per night. The first three named are in cubicles, arranged in large airy rooms with ceilings from 12 to 15 feet high. The partitions separating the cubicles from one another are made of wood, neatly painted, as a rule 7 feet high, and leaving a clear space of about 5 feet above for the free circulation of air. The temperature and ventilation of the rooms are regulated by the watchman, who patrols the floors during the entire night. In the winter steam heat is introduced. The sleeping rooms are cleaned and scrubbed once every day, and after beds are vacated in the morning the clothing is well aired and all odors removed. All the beds have hair mattresses and clean sheets. The beds for 3½d. and 4d. (7 cents and 8 cents) are provided with one clean sheet every night, and the beds for 4½d. (9 cents) with two clean sheets every night. The latter grade of beds has spring mattresses. The beds for 4d. and 4½d. (8 cents and 9 cents) are more conveniently located than the cheaper ones. To economize space many of the cubicles are so arranged that the bed in one cell is above the bed in the other, the cells, however, being entirely distinct from each other. The model for this disposition was most probably found in certain staterooms of large sea-going passenger vessels, but, of course, each cubicle is meant for one person only. Each man can bolt his door when he retires, and thus be completely isolated from all his fellows. A wire screen is stretched across that portion of the top of the cubicle where clothes hooks are placed, to prevent lodgers stealing their neighbors' clothing and belongings during the night. A strip of carpet covers a large part of the floor space of each cubicle, a little attention which seems to add to the homelikeness of the place in the minds of lodgers, comment being frequently made upon this simple feature. Beds letting at 6d. (12 cents) per night are in separate rooms instead of cubicles. They have superior mattresses and are furnished with two clean sheets every night. Each bedroom has an average of 400 cubic feet of air space.

About twelve persons are constantly employed in each home. The superintendent has complete charge of the house, and all other employees are under his orders. He is responsible for the cleanliness and sanitary condition of the house, takes in all money, and keeps the accounts. In this there is no system of automatic registration or other appliance to prevent fraud. It is Mr. Burns' belief that by paying good salaries to his employees and trusting them much better results may be obtained. The superintendent receives £80 ($389.32) per annum and enjoys the use of two rooms and a kitchen for himself and family, free fuel, and the profits accruing from the grocery. Only married men are taken, and their wives are expected to assist in the management. They are not permitted to live outside the buildings. There is considerable emulation among the superintendents of the different homes, each trying to outdo the other in cleanliness and general good management. Three or four men are employed for police service, as watchmen and

general workers, and about eight women are constantly occupied in scrubbing, washing, and general cleaning.

The largest of the houses, Watson Street Home (No. 2), accommodates 670 people. The building was originally intended for office purposes, and has quite an attractive outside appearance. The interior arrangements are similar to those already described, except that the hot chamber for drying clothes is replaced by a much smaller one, heated to an extremely high temperature, into which iron clotheshorses slide on rails.

Another of these lodging houses, called the Star Home, though on the same street, is at some distance from the ones just described. It is more private than the others and is used mostly by older men, who like a quiet home. In this inmates pay ½d. (1 cent) more per night. The house is always full. There is accommodation for 118 persons.

A fourth lodging house, the Garscube Road Home, has 593 beds. Nearly all of the lodgers are workingmen regularly employed in the vicinity. This building was opened in January, 1892. It has a more home-like appearance than any of the others. Situated outside of the crowded parts of the city, it has not been so necessary to economize ground space, so a broad lawn has been made to extend along the whole front of the building, and in the rear a space has been left for athletic recreation. Viewed from the outside, the building presents the appearance of a boarding school. It contains two recreation and reading rooms, provided with four daily papers, six periodicals, and games, such as draughts, bagatelle, etc. Quoits are played in the court outside. In addition to lockers, as described in the first house, this house has a parcel room, where clothes and other effects may be left and checked.

A distinguishing feature of all these lodging houses is the great economy in the use of fuel and hot water. Wherever it is possible steam is used for heating. Another important feature is the attention given to providing little conveniences for the men so that there may be nothing wanting to make their lodgings attractive and comfortable. There are thus the free baths, the footbaths, the upstairs corridor closets, the strips of carpet, etc. In some of the houses there is also a room set aside for a barber shop. There is a chemical disinfecting room in each house in which clothes of filthy or suspicious persons are placed for cleansing. The superintendents visit the proprietor daily at 11 o'clock a. m., to give information concerning the buildings and to receive orders. Mr. Burns, himself, makes inspections at irregular intervals, sometimes during the day and often in the middle of the night or early morning, to assure himself that all is going well.

It was stated at the municipal lodging houses that since payment for bathing had been abolished the number of lodgers using the baths had decreased from 30 per cent to 6 per cent. Bathing has always been free in Mr. Burns' homes, and a large number avail themselves of the

privilege. It has been suggested that possibly employees are not so assiduous in preparing baths for those requesting them when no financial returns have to be made. Undoubtedly a great deal depends upon employees and their attitude. Mr. Burns insists that his superintendents shall encourage bathing to the greatest possible extent.

The following are the rules and regulations applicable to the Burns homes:

1. Lodgers will be received between the hours of 6 a. m. and 10.30 p. m.
2. No one will be admitted to the halls or kitchen until provided with a ticket, which can be had from the proprietor or his assistant.
3. Lodgers will be admitted to bed at 8, 9, 10, and 10.30 p. m. on delivering up their tickets to the assistant.
4. No smoking is allowed on the stairs or in the dormitories or dining hall.
5. No spirituous liquors are to be brought into the homes. No gambling, quarreling, profane or indecent language, or noises of any description will be allowed, nor anything calculated to disturb the peace and good order of the place or the comfort of the inmates. Anyone violating this rule will be expelled and his ticket forfeited.
6. Beds must be vacated by 8 o'clock in the morning, except in special cases, to be judged of by the proprietor or his assistant.
7. Doors will be opened each morning at 5 o'clock, and will be closed at 11 p. m. on week days and at 10.30 p. m. on Sundays. Lodgers arranging beforehand with the proprietor or his assistant may, however, be admitted after that hour.
8. All property belonging to lodgers must be considered as under their own care, but each lodger may have a separate token on depositing 6d. (12 cents), this deposit to be returned on redelivery of the key.

It is a significant fact, speaking not a little for the comfort and good order of these establishments, that 80 per cent of the occupants of Mr. Burns' homes are permanent lodgers.

EDINBURGH, SCOTLAND.

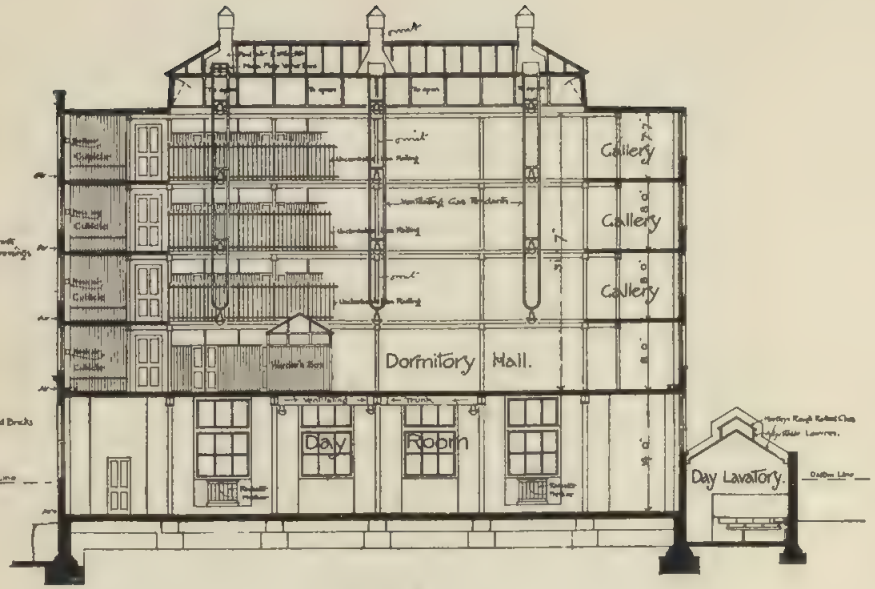
In Edinburgh the Grass Market Model Lodging House Company pays a dividend of 5 per cent. The lodging house of this company is arranged upon the Glasgow system. The house contains 380 beds, and the charges are—36 at 6d. (12 cents), 24 at 5d. (10 cents), and 320 at 4d. (8 cents) per night. Each lodger has the use of a locker; also the use of cooking utensils, kitchen fires, dining hall, reading hall, etc., for the one payment. Provisions are sold in the house at ordinary trade prices. A charge of 1d. (2 cents) is made for a hot bath, with soap and clean towel. This model lodging house is, like all common lodging houses, subject to the regulations made by the corporation.

LONDON COUNTY COUNCIL LODGING HOUSES, LONDON, ENGLAND.

The first of the London County Council's model lodging houses was erected in Parker street, and completed in 1892. The total cost was £21,403 ($104,157.70), of which £15,353 ($74,715.37) was expended



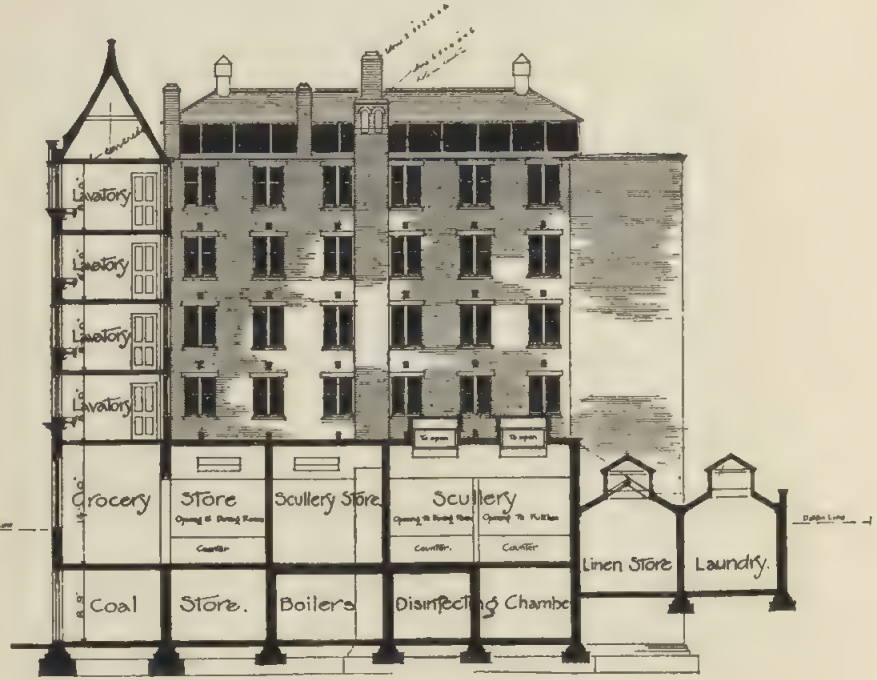
Front elevation.



Section A B



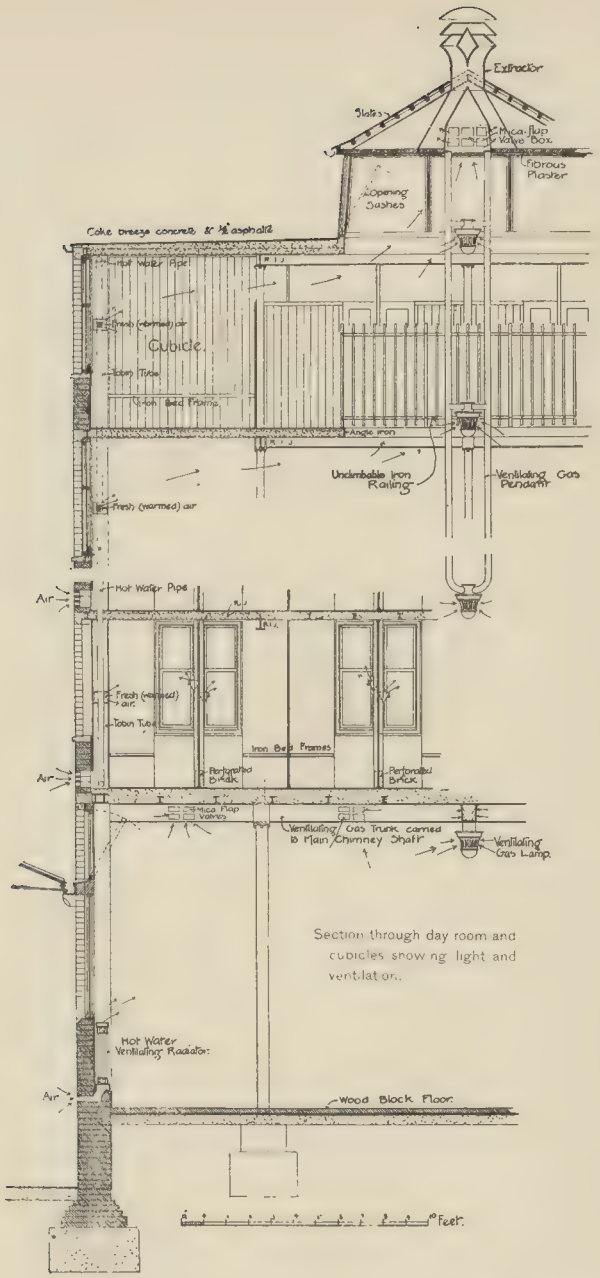
Section C. D



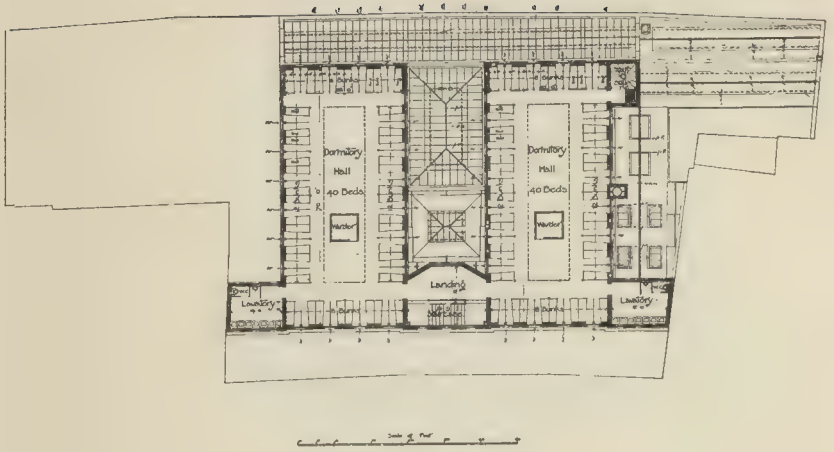
Section E. F.

LONDON COUNTY COUNCIL MUNICIPAL LODGING HOUSE, LONDON, ENGLAND.

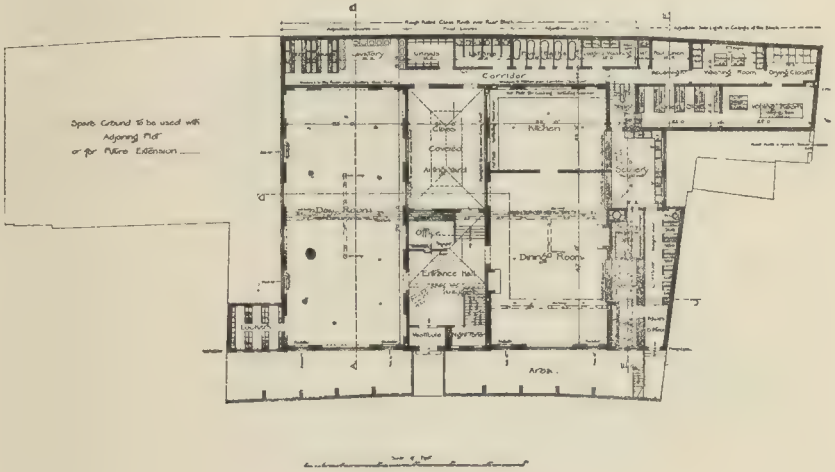
PLAN NO. 79 A.



Section through day room and cubicles showing light and ventilation.



First floor



Ground floor.

LONDON COUNTY COUNCIL MUNICIPAL LODGING HOUSE, LONDON, ENGLAND.

PLAN NO. 79 B.

on the building. The cost of land, furnishings, and incidental expenses represent the remainder. The building accommodates 326 men. The price of a bed is 5d. (10 cents) per night. The enterprise is expected to yield a return of 3 per cent, and to provide an adequate sinking fund to liquidate the building capital.

Plans and elevation of the building are shown in the accompanying cuts (plans Nos. 79 A and 79 B). In them the dormitories are the central point of consideration, since they are the parts of the building which are occupied during the longest periods.

It is claimed that an improvement as regards ventilation and fresh air to the sleeper has been made over the Glasgow models. In them the danger is that currents passing over the top of each cubicle will not sufficiently ventilate the cubicle and therefore the atmosphere will largely remain unchanged during the night. In the London building dormitories are arranged in two halls each 70 feet by 32 feet with three tiers of galleries ranging around a central well. Four hundred and thirty-five cubic feet of air space is allowed to each sleeper. Adjoining the external wall of these galleries are cubicles 6 feet 6 inches by 4 feet, and 7 feet 7 inches high. Each cubicle has a double hung sash window 4 feet 9 inches by 1 foot 9 inches. The windows are arranged in pairs, with a fresh-air inlet in the breast of each at the floor level, supplying a current that passes over a low-pressure hot-water pipe. The current is admitted into each cubicle at a height of about 4 feet 6 inches. The divisions between the cubicles are carried up to the ceilings, while the ends next to the galleries are 5 feet 6 inches in height, leaving an open space of 20 inches to insure a current from the air inlets to the central well, from the roof of which the foul air is extracted.

Beds upon iron frames are tapered so as to increase the floor space, and the feet of the sleeper are placed toward the window so that his head may be free from draft. Cubicles are for one person only and are entirely private. They are each provided with a bolt lock, which fastens when the door is closed. Galleries are protected by iron railings 4 feet 6 inches high surrounding the central well. The latter is ventilated by a cabin roof-light with opening sashes for use in warm weather. The ventilating gas pendants discharge into extract ventilators over, fitted with mica flap boxes to prevent down draft, which insures ample ventilation at other seasons. Each gallery is provided with a lavatory block separated from the main building and containing one water-closet and urinal for night use. A box for a night watchman is situated in each hall so as to command the entire dormitory space. The approaches to dormitories are staircases, 6 feet wide, coming direct from the entrance hall and affording access to each gallery. There is a private staircase for employees, and dumb-waiters for lifting linen and other materials. The basement is occupied by a disinfecting chamber, cold storage, and heating apparatus. On the ground floor there is a central entrance hall giving access to the various parts of the building.

Facing the entrance is the office, which adjoins the sitting room and overlooks the dining room. The sitting room, or day room, is 70 feet by 32 feet and furnishes ample accommodation for entertainments, etc. It has windows on all sides. A small room fitted with lockers for the use of regular lodgers adjoins the day room. The dining room is 47 feet by 32 feet. It has two large open fireplaces and communicates with a kitchen 32 feet by 22 feet, where a hot plate 50 feet in length, for cooking purposes, has been erected. Next to the kitchen is the scullery, 21 feet by 14 feet, with its storeroom 11 feet by 9 feet adjoining, where there is a counter for receiving and serving of utensils. Next to the dining room is the grocery, where provisions may be had at low prices. A small outhouse has been erected for laundry and linen storage. It is one story high and contains a receiving, washing, and drying room, with ironing room and linen store. Though distinct from the main building, a door communicates with it directly from the rear public corridor, so that lodgers who require washing done may there hand it in.

There is a glass-covered exercise yard, 33 feet by 21 feet, behind the entrance hall and leading to the conveniences for day use which are entirely isolated from the main building. These conveniences comprise lavatory, water-closet, urinals, footbaths, baths, and lodgers' washing and drying rooms.

The structure is of brick. Glazed brown bricks are used in the front for the first floor. Internal walls are rendered in Portland cement. The building while not absolutely fireproof is eminently fire resisting. The space between the iron girders is filled with concrete. Floorings of day room and halls are in wood blocks, while kitchen and all other floors are floated in cement.

This establishment has proved a great success and has secured a large patronage. Undoubtedly the council will build other lodging houses in different sections of London, not only for men but for women as well.

ROWTON HOUSE, LONDON, ENGLAND.

Rowton House, Vauxhall, was erected by Lord Rowton, at a cost of about £30,000 ($145,995), with a view of improving that large class of wage-earning single men who have uncertain occupation and no settled home. It was opened December 31, 1892. It is a magnificent structure, admirably fitted throughout, and in all salient respects a residential club.

The prices charged are 6d. (12 cents) per night. The interior dispositions of this building do not differ materially from those already described. The cubicles are 7 feet 6 inches by 4 feet 9 inches, arranged on the Glasgow plan, and allowing 440 cubic feet of air space per occupant. The feature of this house distinguishing it from the others so far mentioned is that lodgers may have the choice of cooking their own food or of having meals served at stipulated rates. There is adequate

lavatory and bathing accommodation, while the sanitary conveniences are such as would do credit to a first class hotel. The building contains 470 cubicles, each furnished with a chair and an iron bedstead having a steel wire woven mattress, a hair mattress, bolster, blanket, sheets, and coverlet. Lord Rowton believes that ultimately the ratepayers in large English cities must take up the question of housing the very poor and submerged classes. He therefore thinks that private enterprise should make experiments in order to fix the prices at which this can be done. A few years ago he went to Mr. Farrant, the moving spirit of the Artisans', Laborers' and General Dwellings Company and stated his willingness to risk £25,000 ($121,662.50) of his own money in the enterprise, and asked the latter's advice and assistance. It was of course cheerfully given, and the result has proved so satisfactory that a limited liability company has recently been formed with a capital stock of £75,000 ($364,987.50), with Lord Rowton as president and Mr. Farrant as one of the directors, to extend this work in other parts of London. It is proposed to build a second lodging house near King's Cross.

Lord Rowton, the very first year, which ended December 31, 1893, received 5 per cent on his capital, and for the last three months of that year, before his enterprise was taken over by the company, the profits showed a rate of over 6 per cent per annum.

HUDDERSFIELD, ENGLAND.

Huddersfield has four types of model lodging houses. The total number of lodgers in the single men's department, in 1892, was 44,401; in the single women's department, 4,247; in the married couples' department, 6,422, and in the mechanics' home department, 13,993. There are 123 beds for single men, 12 for single women, 9 for married couples, and 41 beds in the mechanics' home department. Only persons of cleanly, respectable habits, perfectly sober and free from disease or filth and in full possession of their mental faculties are admitted as lodgers. Persons whose wives or husbands are in receipt of parochial relief, except where granted on account of accident, are not admitted. Receipts for the fiscal year 1892 were as follows: Single men's department, at 3d. (6 cents) per night, £555 1s. ($2,701.15); single women's department, at 3d. (6 cents) per night, £53 1s. 9d. ($258.35); married couples' department, at 6d. (12 cents) per night, £80 5s. 6d. ($390.66), and mechanics' home department, at 5d. (10 cents) per night, £291 10s. 5d. ($1,418.69).

LIVERPOOL, ENGLAND.

Liverpool has no municipal model lodging house, but a control is exercised over common lodging houses. In these latter the health committee insists as far as possible that there shall be day apartments.

The air space required for a night lodger in the common lodging houses is 300 cubic feet, while the space in a sublet house for each adult is 350 cubic feet.

At the end of 1892 there were 817 registered lodging houses in Liverpool. They were visited during the year 35,461 times during the day and 5,428 times during the night. Sixteen were found overcrowded and 111 were dirty. The health committee insists that all houses where single rooms are occupied by the day and night must be registered as sublet. The number of such sublet houses at the end of 1892 was 20,134. The number of visits to them during the night was 22,336 and during the day 101,201. One thousand three hundred and two rooms were found to be overcrowded—that is, were found to afford less than 350 cubic feet per adult occupant. Permitting males and females who are not married to occupy the same room comes under the notice of the sanitary inspectors, though it is not a punishable offense in sublet houses. During 1892, says the official report of Dr. J. Stopford Taylor, the medical officer of health, 632 rooms were thus indecently occupied by 1,001 males and 1,069 females, besides 428 children between the ages of 3 and 12. In 322 instances, 1 man and 2 women were found in the same bedroom; in 156 instances, 2 men and 1 woman; in 48 instances, 2 men and 2 women; in 23 instances, 1 man and 3 women; in 70 instances, 3 men and 3 women; in 3 instances, 2 men and 3 women; in 3 instances, 3 men and 2 women; in 1 instance, 1 man and 4 women; in 1 instance, 4 men and 1 woman; in 2 instances, 1 man and 5 women; in 2 instances, 5 men and 1 woman, and in 1 instance, 6 men and 2 women.

These facts only emphasize the necessity of a thorough provision of model lodging houses, either by the corporation or by private enterprise, so that there may no longer be any excuse for overcrowding and immoral commingling. Such institutions have a profound sociological value, dealing, as they do, as a rule, with the lower strata of working people, or, indeed, with those who have lost social caste. The strict discipline and regulation to which inmates are subjected are of great importance. Social workers have also a good chance to come in contact with the inmates, and an excellent opportunity is created, by providing sound recreation, to overcome the baleful saloon habit and the philosophy of the streets. Experience shows that it is a work that can be done with financial profit. In large cities where there is a lack of these institutions, overcrowding, with its attendant moral evils, is sure to prevail.

CHAPTER XII.

ECONOMIC AND ETHICAL ASPECTS.

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Will improved housing pay? This is a question of cardinal importance, and only in case an affirmative response is forthcoming can we augur a successful issue to the housing problem. If the solution of the problem is to depend upon philanthropy alone it is safe to say that very small progress can be made. If city dwellers are to be better housed better housing must pay.

There can be no question as to the remunerative character of housing operations conducted in the interests of the artisan and other well paid laborers. Money invested for this purpose brings a sure, safe, and stable return. There is, therefore, absolutely no reason why every workingman in receipt of a fair wage should not be able to command a favorable living environment. It is a well known fact that rents paid for inferior houses are often quite as high, and in some cases higher, than those paid for a good class of dwellings. In illustration of this fact the following comparative tables showing the weekly rent per room in tenements belonging to the Boston Cooperative Building Company and rents charged for tenements in houses ordered vacated by the board of health in 1892 are cited:

WEEKLY RENTS PER ROOM IN TENEMENTS OF THE BOSTON COOPERATIVE BUILDING COMPANY.

[From report of the Boston Cooperative Building Company, Boston, Massachusetts, 1892.]

Street.	Number of houses.	Description of houses.	Number of rooms.	Families.	Persons.	Weekly rent per room.
East Canton	18	Old	238	78	262	$0.90
Bush	4	Old	56	23	53	.79
Thorne	2	Old	28	8	37	.75
Andrew	3	Old	34	12	35	.80
Andrew place, 1 and 2	2	New	24	12	25	1.08
Andrew place, 4, 6, 8, 10, 12	5	New	39	15	50	.92
Clark	5	Old	52	17	65	.74
Endicott	1	Old	39	13	44	.80
Thacher, 21	1	Old	24	10	38	.87
Thacher, 19	1	Old	21	8	21	.85
Thacher, 15	1	New	23	9	50	1.05½
Thacher, 13	1	New	30	15	45	1.16
Phillips	8	Old	86	33	77	.68

All of these houses are of brick except the Clark street estate and the Phillips street estate. The first four, namely, the East Canton, Bush, Thorne, and Andrew street properties, are about twenty years old.

WEEKLY RENTS PER ROOM IN HOUSES ORDERED VACATED BY THE BOSTON BOARD OF HEALTH IN FEBRUARY, 1892.

[From Report No. 1, Better Dwellings Society, Boston, Massachusetts, June 1, 1892.]

Date.	Street.	Number of rooms in tenement.	Number of occupants in tenement.	Weekly rent per room.
1881	Endicott, 135	2 rooms		$0.63
1889	Endicott, 135	2 rooms		.58
1881	Endicott, 135 (rear)	3 dismal rooms		.42
1887	Endicott, 135	2 rooms		1.25
1884	Endicott, 163 (rear)	2 rooms		.75
1892	Endicott, 163 (rear)	2 rooms		.75
1892	Endicott, 163 (rear)	3 rooms		.77
1883	Everett court	1 small room		.81
1891	Everett court	1 small room		.81
1892 (Feb. 18)	North Brimmer place, 2.	2 rooms, first floor front	Man and wife and 2 children.	.58

The comparison is a perfectly fair one to make, the two classes of property being situated in the same parts of the city and sometimes in the same street.

The moral is evident. If the Boston Cooperative Building Company can afford to provide sanitary and convenient accommodations at a figure considerably smaller than is often charged for houses which are so bad that they have to be closed by public authority, and yet earn 6 per cent besides providing for a substantial depreciation fund, there would seem to be absolutely no reason why private capital should not house the working population of Boston on a satisfactory commercial basis.

Rents for the poor are said to be higher in the Boston tenements than in any other of the large cities of the United States. There is certainly a considerable difference between the rentals in model tenement buildings in Boston and abroad. The average for the new brick buildings of the Boston Cooperative Building Company in the north end is $1.10 per room per week; in the south end $1 per room per week. The average rental of the Peabody buildings is 2s. 1¾d. (52 cents) per room per week, and of the Improved Industrial Dwellings Company about 2s. 2d. (53 cents).

Corroborative evidence of the statements just made in reference to comparative rents in sanitary and insanitary tenements appears in the following table, which refers to Glasgow:

MONTHLY RENTS CHARGED FOR MODEL, TICKETED, AND UNINHABITABLE TENEMENTS IN GLASGOW.

[From an article on Uninhabitable Houses, by Dr. James B. Russell, in the Sanitary Journal for September, 1894.]

Class of tenements.	Total cubic space.	Average number of inmates.	Cubic space per inmate.	Rent.		
				Per month.	Per inmate.	Per 1,000 cubic feet.
ONE ROOM.						
Improvement Trust Model	2,213	2.92	758	$3.24	$1.11	$1.46
Workmen's Dwellings Company	1,189			2.09		1.77
Ticketed	1,058	3.17	334	1.93	.61	1.83
Uninhabitable	1,265	3.08	411	1.56	.51	1.24
TWO ROOM.						
Improvement Trust Model	3,158	4.29	736	3.97	.93	1.26
Workmen's Dwellings Company	1,964			2.82		1.44
Ticketed	1,725	4.66	370	2.49	.54	1.44
Uninhabitable	1,690	4.24	398	2.07	.49	*a* 1.40

a Probably an error; apparently should be $1.22.

Interest in the tenement house question in Boston has not subsided since the publication of Prof. Dwight Porter's inquiry into the sanitary situation of certain tenement house districts in 1889. This investigation was undertaken at the instance of the associated charities, and was thoroughly well carried out. Later has followed a statistical inquiry made by the Massachusetts bureau of statistics of labor, directed by Mr. Horace G. Wadlin, into every house classified as a tenement house. The subjoined table gives a summary of this interesting inquiry:

SANITARY CONDITION OF TENEMENTS IN TENEMENT HOUSES IN BOSTON.

[From Twenty-third Annual Report of the Massachusetts Bureau of Statistics of Labor.]

Sanitary condition.	Outside.		Inside.					
			Light and air.		Ventilation.		Cleanliness.	
	Per cent of—		Per cent of—		Per cent of—		Per cent of—	
	Families.	Population.	Families.	Population.	Families.	Population.	Families.	Population.
Excellent	16.77	16.61	18.66	18.44	18.74	18.49	20.67	19.84
Good	40.60	40.30	44.39	44.50	44.07	44.16	39.33	38.97
Fair	30.87	31.02	28.58	28.68	28.80	28.94	28.44	28.89
Poor	9.10	9.33	6.56	6.61	6.79	6.86	9.15	9.68
Bad	2.66	2.74	1.81	1.77	1.60	1.55	2.41	2.62

Inquiry into the sanitary condition of tenements for the whole city showed that those residing in tenement houses classified as excellent, good, and fair, as regards outside sanitary condition, constituted 88.24 per cent of all families residing in rented tenements, and 87.93 per cent of the entire population found in rented tenements of the city. The aggregate represented by these figures is 273,783 persons.

It was found that there were 8,426 families, numbering 37,613 persons, in tenements having poor or bad outside sanitary conditions. These families constituted 11.76 per cent of all families and 12.07 per cent of the total population found in rented tenements. In one ward of the city one-fourth of all the population resided in tenements which had bad outside and inside sanitary conditions. In two other wards about one-fourth of the residences presented bad outside sanitary conditions, and on the average more than one-fifth presented bad inside sanitary conditions. The significance of these figures may be more readily appreciated when it is understood that more than three-fourths of the total population of these three wards reside in tenement houses.

The efforts of those most interested in sanitary reform in Boston are now being directed toward securing a law which will permit expropriation of individual houses or areas for sanitary purposes; in other words, such powers in relation to public health as are enjoyed under English acts. This is beyond all question a necessity for grappling successfully with the tenement house evil.

There is no doubt at all that working people of all classes, except the very lowest and most degraded (and these can not be called working people, for they work only as a last necessity), appreciate good accom-

modation and are willing to pay for it. The punctuality with which rents are paid leads Sir Sydney Waterlow to believe that people in good rooms are anxious to keep them, and that there is a growing desire for comfortable homes. He states that, with a rent roll amounting to about £80,000 ($389,320) a year, his company loses practically nothing. Overcrowding and living in filthy surroundings are sometimes represented to be matters of habit or preference with certain nationalities. The almost universal testimony of all who have seriously tried to improve the environments of city dwellers goes far toward proving the reverse to be true.

Economists are agreed that 20 per cent of the earnings of the head of the family ought to be the maximum expenditure for rent in cities. There can be no doubt that the rents paid by the working people in the countries which have been included in this investigation, and especially in the cities, consume too large a proportion of the wages.

A recent inquiry, covering the working population of the city of Brussels, (*a*) showed that the average rent of a room was 11.68 francs ($2.25) per month, while the average wage was 3.14 francs (61 cents) per day. Of the working class families living in Brussels 2.54 per cent occupied an entire house, 7.11 per cent lived in tenements containing three rooms and more, 41.81 per cent in tenements of two rooms, 36.18 per cent in single rooms, 11.33 per cent in single garret rooms, and 1.03 per cent in single cellar rooms. It is impossible to compute exactly the proportion of rent to income of the head of the family for all classes from the figures above quoted, as the number of rooms in the first two classes of tenements is not known. There is good ground, however, for the belief that a fair economic limit is surpassed.

"In Bordeaux," says M. Louis Champion, "the rents often absorb 25, 30, and sometimes 35 and 40 per cent of the family resources." He might have added that Bordeaux is not an exception. Mr. Marchant Williams, inspector of schools in London, gives, from personal observation in the parishes of Clerkenwell, Saint Luke's, Saint Giles', Marylebone, and other poor quarters of London, the following statistics showing the relation between rent and income. He finds that 42 per cent of the poor population pay from one-fifth to one-fourth of their earnings in rent, 46 per cent from one-fourth to one-half, and only 12 per cent pay less than one-fifth. The figures cover over 1,000 dwellings chosen at random in different poor quarters of London. Among them 3s. 10¾d. (95 cents) is the average weekly rent for one room, 6s. ($1.46) for two rooms, and 7s. 5¼d. ($1.81) for three-room tenements.

A report from Vienna, published a few years ago, stated that the annual rent of houses in the best streets of the Austrian capital brought 100 florins ($34.10) per square klafter (36 square feet) for five stories, or 20 florins ($6.82) per 36 square feet of living room. In the suburbs, however, a dwelling composed of one room and a kitchen,

a Enquête sur les Habitations Ouvrières en 1890: Rapport présenté au Comité de Patronage de la Ville de Bruxelles, par Ch. Lagasse et Ch. De Quéker.

occupying an area of about 7 square klafters (252 square feet), brought a monthly rent of from 12 to 15 florins ($4.09 to $5.12), that is to say, from about 21 to 25 florins ($7.16 to $8.53) per square klafter (36 square feet) per annum. Still dearer were the smallest lodgings, composed of a single room, where the yearly rent amounted, on the average, to from 24 to 27 florins ($8.18 to $9.21).

The rental of a tenement in Berlin consisting of one room and a kitchen is, on the average, from 220 to 240 marks ($52.36 to $57.12) a year, according to Herr Valentin Weisbach. This makes the expenditure so high in proportion to wages that large numbers of families are obliged to take lodgers. Statistical tables for Leipsic show that rents for the poorest class of tenants absorb about 33 per cent of the income. Figures for Westphalian manufacturing cities show a proportion of 25 per cent, for the industrial cities of Saxony and upper Silesia as high as 40 per cent, in Munich and Dresden from 25 to 33 per cent, and in Frankfort on the Main over 33 per cent of the earnings of unskilled laborers.

The unfortunate part of it is that these relatively high priced dwellings are often neither healthy, comfortable, nor well situated. If people are put into healthier houses they will be able to pay larger rents. Some years ago an inquiry made by the sanitary authorities in the very poorest parts of London disclosed the fact that, upon the lowest average, every workingman lost about twenty working days in the year from sheer exhaustion. Putting the value of his labor at a low figure, a good sized additional sum would have been available for the rent bill had exhaustion not occurred. The economic value of sanitary reform has never been fully appreciated. The loss to any nation by allowing insanitary conditions to prevail is simply tremendous. It is likewise twofold. There is in the first place a great waste of productive power which might otherwise have been utilized, and secondly there is the expense of maintenance of hospitals and pauper institutions, a large number of the inmates of which are recruited through sickness caused by unhealthy living environment.

The natural and logical sequence of high rents is overcrowding. This is not only unfortunate from the sanitary point of view but it is also fearfully degrading to morals. Its effects in this respect are treated more fully in considering certain ethical features at the close of the present chapter. Overcrowding is not usually the fault of landlords. Indeed, except in the case of sweating dens situated in dilapidated buildings, it can easily be seen that too great congestion within dwellings is against the interest of the owner. The Presbytery Commission of Glasgow felt bound in their report to assert that, as regards overcrowding in that city, they believed landlords to be absolutely blameless.

There are many causes for the high rents which laboring people living in cities have to pay. The price of land is a factor of prime importance. The necessities of the workingman, especially the casual laborer, lead him to live near his work, and building ground in such

localities is naturally very dear because of contiguity to business quarters. The advance in the price of land has everywhere been much greater than the rise in wages; consequently the sums which it would be necessary to charge for rent if really sanitary dwellings were constructed, this class, especially, could not afford to pay. The best that can be done for the casual worker in these circumstances is to house him in renovated property until the advance of business shall render the surrender of his home a necessity. Sir Sydney Waterlow admits that without the sympathy of private landlords, such as the Duke of Westminster, the Marquis of Northampton, the Earl of Cadogan, the Baroness Burdett-Coutts, and the ecclesiastical commissioners, who furnished land at low ground rents, buildings erected in certain neighborhoods could not have been made to pay. Three cents and 4 cents per square foot have been paid for such building sites on long leases.

Sir Sydney Waterlow believes that leasing is more profitable than buying for a trading company, because the money invested in the buildings will yield 5 to 6 per cent and allow a margin for redemption purposes. "You can not buy land," he says, speaking of central London, "to pay much more than 3 per cent or 3¼ per cent, and if you have to invest a large sum at that percentage you have to earn more to pull it up to 5 per cent." The practice of building tenements on leasehold property has not been resorted to in this country.

Herr Weisbach puts down the value of building land in the outskirts of Berlin at from 28 to 40 marks ($6.66 to $9.52) per square meter (10.764 square feet). The burgomaster of Brussels asserts that land, after demolition of insanitary dwellings, in Brussels, would cost 50 francs ($9.65) per square meter (10.764 square feet). In some English cities expropriated ground has cost much more.

Mr. Clement Dunscombe, ex-city engineer of Liverpool, published, a short time ago, in his report on Rehousing of the Artisan and Laboring Classes, an interesting table showing the maximum outlay on land and buildings per room that will yield certain specified percentages at given rentals. It is here reproduced, because of the undoubted competency of its author and with the hope that it may be of some use to persons inclined to attempt the improvement of workingmen's homes:

MAXIMUM OUTLAY PER ROOM THAT AT A GIVEN RENT WILL YIELD A GIVEN RATE PER CENT PER ANNUM.

[In all cases 30 per cent has been deducted from the gross rental for taxes, repairs, unoccupied lodgings, etc., to arrive at the net rent upon which the percentage has been calculated.]

Gross rent per room per week.	Maximum outlay per room that will yield each year—														
	6½ per cent.	6¼ per cent.	6 per cent.	5¾ per cent.	5½ per cent.	5¼ per cent.	5 per cent.	4¾ per cent.	4½ per cent.	4¼ per cent.	4 per cent.	3¾ per cent.	3½ per cent.	3¼ per cent.	3 per cent.
	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£
1s	28	29	30	31	33	34	36	[illegible]	40	43	45	48	52	56	60
1s. 3d	35	36	37	39	41	43	45	47	50	53	56	60	65	70	75
1s. 6d	42	43	45	47	49	51	54	57	60	64	68	72	78	84	90
1s. 9d	49	51	53	55	57	60	63	67	70	74	79	84	91	97	106
2s	56	58	60	63	66	69	72	76	[illegible]	85	91	97	104	112	121

The most promising means of overcoming the cardinal difficulty of securing suitable sites for the erection of workingmen's dwellings, for both higher paid and poorly remunerated tenants, is in the development of rapid transit facilities. Only in this way can there be an emptying of congested districts, and whole suburban districts brought into accessibility. The superabundance of accommodation which would be created would probably lower rents, and an important influence would also be exercised in causing those who can afford to pay good prices to go to the suburbs. No proper estimate can yet be given of the ethical contribution to civilization made by rapid transit lines.

Electric transportation will powerfully influence the housing problem, not merely by furnishing an easy means of transportation, but by lowering the value of city property along certain routes of travel. It is a common thing now to hear of well-to-do people moving to the suburbs because it is so easy to come to town and because of the dangers to their children of rapidly moving cars and the annoyance caused by continual gong ringing at street corners. This is especially true along all night lines. The exodus of people so minded will leave a greater available area for those who remain. Hitherto workingmen who have been obliged to live in the suburbs of the city were obliged to suffer more or less inconvenience and often had to pay dearly for the privilege.

In the United States the only measure looking to the provision of workingmen's trains is that which is incorporated in the public statutes of the Commonwealth of Massachusetts, 1882, chapter 112, section 183. The paragraph reads as follows:

Every railroad corporation whose railroad runs out from Boston shall furnish on each week day a morning train in and an evening train out for distances not exceeding fifteen miles, or suitable cars attached to other trains, and reaching and leaving Boston at about six o'clock in the forenoon and afternoon, or at such hours as may be fixed by the board; and for such trains shall furnish yearly season tickets at a rate not exceeding three dollars per mile per year good once a day each way for six days in a week, and quarterly tickets not exceeding one dollar per quarter per mile; provided, that two hundred or more persons make application therefor.

In February, 1893, Sir Blundell Maple introduced into the House of Commons the cheap trains (London) bill. This bill, which was intended to extend the cheap trains act of 1883, proposed the issue of daily tickets at zone tariffs for the double journey. The public health and housing committee were unable to approve the system of zone tariffs proposed, and reported to the London county council accordingly, at the same time reiterating the recommendations made in previous reports and submitting a model zone system designed to be applicable to all present and future metropolitan railways, the object being to encourage the migration of the working classes as far into the country as possible. The limit of distance proposed was 20 miles, apportioned in three zones, with a resulting tariff equivalent to a mean rate of one-fifth of

a penny a mile, against the present average mean rate of all the thirteen companies of about one-third of a penny.

The first provision for workingmen's trains in London was made in the metropolitan act of 1861; but before the cheap trains act of 1883, furnishing workingmen's trains was not made compulsory to railways centering in the metropolis. There has not been the same advance in street car service in London as has characterized the last few years in this country. Indeed, the conditions are such that a widespread development is scarcely feasible. Hence it is that the London county council still occupies itself with the question of workingmen's trains.

On June 28, 1893, a conference of members of the London county council and representatives from all the railways concerned was held at the board of trade, and was presided over by Sir Courtenay Boyle, the secretary of the board. The London county council made the following suggestions in relation to workingmen's trains:

1. That workmen's tickets be made available for return by any train carrying third-class passengers.
2. That the issue of quarterly or monthly third-class tickets be extended to all stations within the limit of the cheap train service.
3. That the conditions as to the issue of workmen's tickets, the fares, kind of tickets supplied, and train by which available, be published not only in the book of time tables of each company, but be conspicuously advertised by means of posters at all stations served by workmen's trains.
4. That, except in the case of quarterly or monthly third-class tickets, all workmen's tickets be daily ones.
5. That all third-class trains, whether on main or branch lines, arriving at the London termini up to 8 a. m. be workmen's trains throughout the area of the cheap train service.
6. That all third-class trains from London termini up to 7.30 a. m. be also workmen's trains throughout the same area.
7. That when insufficient third-class accommodation is provided in a workmen's train the holder of a workman's ticket be allowed to travel by a superior class without extra charge.
8. That the model zone system suggested in the committee's report is one worthy of adoption, and which might fairly be made applicable to all future as well as present metropolitan railway undertakings.
9. That superior cheap trains at half fares should be run to London termini by all metropolitan railways from all stations within the area of the cheap train service from 7 to 9 a. m. without restriction as to time of return.

Regarding the first suggestion, the companies agreed that workmen's tickets should be available for return after noon instead of only after 4 o'clock. The second suggestion was withdrawn from discussion as applying to a class beyond that for which workmen's trains were intended. The companies agreed to Nos. 3 and 4. No. 5 was agreed to by some but not by all of the companies. As the issue raised by Nos. 6 and 7 was a small one, and the companies could not agree, these suggestions were withdrawn. The eighth suggestion was made with the object of doing away with the inequality of charges on the different

lines, and of remedying the unequal charge per mile. It was shown that the same company charges in some instances five times as much per mile for short distances as it does for longer journeys. Although the companies did not consider the suggestion practical, they intimated readiness to consider the system of grouping fares for varying distances up to 12 miles from the terminus of each railway. The discussion of the matter was finally postponed for a future conference. Up to April 16, 1894, no adjustment had been reached.

The great drawback in English practices seems to have been that the season ticket has not been fully extended to include third-class passengers on the same favorable basis as that accorded to first-class season ticket holders. Under present arrangements on many railroads unless the third-class passenger is in a position to avail himself of workingmen's trains he pays at the end of the year as much as a person holding a first-class season ticket. In the case of Noel Park, one of the suburban settlements of the Artisans', Laborers' and General Dwellings Company, unless a workingman is willing to leave his home before 5 a. m. he must pay 4s. (97 cents) weekly railway fare. This is 33 per cent more than the average weekly cost of a first-class season ticket. Some railways, such as the Midland, for example, have adopted a third-class season ticket entitling the holder to travel on any train. The cost per working day to a holder is a little under 3d. (6 cents) for a round trip of 8 miles.

Belgium offers excellent facilities in the way of transportation to working people. Railways and tramways are found everywhere, and laborers enjoy such cheap rates that many live as far away as Ghent and Antwerp and go to Brussels to perform their daily work. Workmen living in the farthest outskirts, when employed in Brussels, pay from 1.20 to 1.50 francs (23 to 29 cents) per week railway fare. This is 4 to 5 cents daily for the return journey.

Paris affords no special facilities for transporting workingmen. There are no underground railways, and elevated structures are opposed on the ground that the beautiful appearance of the city would be spoiled. Three of the tramway lines of Paris are obliged by the municipal council to run early cars at 15 centimes (3 cents) fare.

Another cause of high rents is the increased cost of building. This seems to have been common to both continents. Sir Sydney Waterlow says that the first block which he himself built (about 1860) cost £32 ($155.73) per room. In 1885 his company was paying £50 ($243.33) per room. All expenses except the price of land were included. The advance in labor was largely responsible for the enhanced cost. This experience is singularly corroborated by Mr. Alfred T. White, one of the owners of the well known model tenements in Brooklyn. He estimates that the cost of building has advanced 40 per cent in fifteen years, due almost wholly to increased price for labor.

Abroad, taxation seems to fall unfavorably on city dwellings of the poor. The property tax, which has to be paid on gross value instead

of divisible profits of housing companies, is particularly instanced by Sir Sydney Waterlow.

Mr. John Honeyman, a Scotch authority, shows that the incidence of taxation is heaviest upon the lower class of rentals. Taking Glasgow as an example, the municipal, parochial, and school rates, property tax, and house duties, together, amount to about 5s. 3d. ($1.28) per £1 ($4.87) of rental. While part of these are disbursed by the landlords, they are all paid by the tenant, part directly and part through the landlords in the shape of higher rents. Mr. Honeyman calculates that 67 per cent of the total taxes paid on dwellings, including the hotels, in Glasgow, annually comes out of the pockets of working people. In London rates and taxes are currently reported to amount to about 25 per cent of the rental. The owners of ground rents pay nothing except to the income tax. In Scotland the proprietary class pays also half the rates (*a*). In Berlin no one who pays a lower rent than 200 marks ($47.60) a year is assessed on his rental. Above this amount he pays on a graduated scale, beginning at 2 per cent and rising to 6½ per cent when the rent exceeds 1,000 marks ($238) a year. There is also a graduated income tax on incomes, beginning with 660 marks ($157.08) per annum.

The tax on doors and windows in France encourages poor provision of light and air in workingmen's dwellings. Sewerage and water rates are also high, so that there is again a discouragement to cleanliness and proper hygienic surroundings.

The system of selling single apartments in buildings is quite common in certain parts of Scotland, notably in Dundee. The method is usually this: An enterprising person takes land in feu, which means leasing it from the landlord on a perpetual lease, upon payment of a certain rental known as a ground annual, and builds tenement houses on it with a view to selling them in individual tenements. The investor, if a person of small means, need only have enough to begin operations. The landlord advances the rest necessary for completing the building, at 4 per cent. The borrower can either pay this by annual installments during twenty-two years or, all at once, by giving three months' notice. When the building is completed he sells the single apartments and realizes a good profit. In the case of such buildings the roof is common property, to be kept in repair by the owners. Persons on the first floor keep the first staircase in order, those on the second floor the second staircase, and so on.

The system of selling single apartments in buildings on the "ground annual" and "feu" system sometimes results in serious complications, especially when buildings have to be torn down or repaired. There are certain other disadvantages. It is often made the means by which dishonest landlords defraud builders and suppliers of materials. Several years ago Sir Sydney Waterlow formed a company for the purpose of selling single tenements in tenement buildings in London, but it does not appear that much has yet been done.

a Rates mean local taxes as distinct from national taxes.

Does model housing pay? The best answer to this question is the following table giving the dividends paid by companies engaged in the work. It is very important to draw a distinction regarding the character of these different organizations. In the table they are divided into commercial, semiphilanthropic (involving the limitation of dividends to a moderate figure), philanthropic (where capital is derived from bequests or gifts, and where the income is expended in furtherance of the work), municipal (where the local governing body is the landlord), and manufacturing corporations. The latter must be considered quite separate, because there is always an intangible dividend in the way of increased assiduity or greater stability of labor, which the employer certainly deems a sufficient commercial remuneration or he would not engage in the work. There is between the employer housing his workingmen a reciprocity of interest which does not at all exist in the ordinary relations of landlord and tenant.

Lord Shaftesbury insists over and over again that persons investing in improved housing of the poor can make easily from 4 to 4½ per cent. Sir Sydney Waterlow is just as convinced that 5 per cent may be forthcoming, and he has justified his faith by his works through a long series of years.

Fixing a fair rate of dividends for housing agencies is really a difficult matter. In some countries 6 per cent might be deemed the proper amount, in others 5 per cent, in some again 4 per cent, and even 3 or 3½ per cent might, in a few instances, be considered not too low a figure. The value of money fluctuates at different times, but when one is speaking of a fair rate one must always consider the security of the investment. It is scarcely fair to model houses to compare financial results as far as they are concerned with ordinary dwelling house property. Four per cent on houses well built and well taken care of is far better than 6 per cent on flimsy constructions inhabited by careless or destructive tenants. The model dwellings, being more firmly built, always last longer, so that a smaller dividend may indicate a larger real profit. The following table shows the dividends paid and the per cent of net profit earned by the various companies for the last year for which such returns were available:

DIVIDENDS AND NET PROFITS OF MODEL HOUSING COMPANIES.

Company.	Character of company.	Dividends paid.		Per cent of net profit for year.
		Year ending—	Per cent.	
UNITED STATES.				
Improved Dwellings Company, Brooklyn, New York.	Commercial.....	1892		(a)
Improved Dwellings Association, New York city.	Commercial.....	1893	5	b 6
Tenement House Building Company, New York city.	Semiphilanthropic..	Dec. 31, 1891	4	4½
Boston Cooperative Building Company, Boston, Massachusetts.	Commercial.....	Dec. 30, 1893	6	9.96
Improved Dwellings Association, Boston, Massachusetts.	Semiphilanthropic..	Dec. 31, 1893	4	5½ to 5½

a First buildings constructed, 10 per cent; new building, 5 to 6 per cent. *b* Average.

DIVIDENDS AND NET PROFITS OF MODEL HOUSING COMPANIES—Continued.

Company.	Character of company.	Dividends paid.		Per cent of net profit for year.
		Year ending—	Per cent.	
UNITED STATES—concluded.				
S. D. Warren and Company, Cumberland Mills, Maine.	Manufacturing	1892		5
Willimantic Linen Company, Willimantic, Connecticut.	Manufacturing	1892		*a b* 3
Merrimac Manufacturing Company, Lowell, Massachusetts.	Manufacturing	1892		*c* 2.3
GREAT BRITAIN.				
Improved Industrial Dwellings Company, London.	Commercial	Dec. 31, 1893	5	8+
Artisans', Laborers' and General Dwellings Company, London.	Commercial	Dec. 31, 1893	5	
Metropolitan Association for Improving the Dwellings of the Industrious Classes, London.	Commercial	Mar. 31, 1893	4½	
Four Per Cent Industrial Dwellings Company, London.	Semiphilanthropic	Dec. 31, 1893	4	6½
East End Dwellings Company, London	Commercial	Dec. 31, 1891	5	
Tenement Dwellings Company, London	Commercial	Sept. 29, 1893	5	
Peabody Donation Fund, London	Philanthropic	1893		*a* 3½ to 3½
Guinness Trust, London	Philanthropic	Dec. 31, 1893		3
Municipal Model Buildings, Liverpool:				
Saint Martin's Cottages	Municipal	1893		2.3
Juvenal Dwellings	Municipal	1893		3.7
Victoria Square Dwellings	Municipal	1893		2.6
Glasgow Workmen's Dwellings Company, Glasgow.	Semiphilanthropic	June 30, 1893	2½	3.85
Municipal Model Dwellings, Glasgow	Municipal	May 31, 1893		3.2 3.5 4.6
Rosemount Association for Providing Dwellings for Working People, Edinburgh.	Commercial	1893	6	
Edinburgh Association for Improving the Dwellings of the Poor, Edinburgh.	Commercial	1893	*a* 3½	
Municipal Artisans' Dwellings, Huddersfield.	Municipal	Mar. 31, 1892		*a* 4
FRANCE.				
Healthy Dwellings Company, Marseilles	Semiphilanthropic	Sept. 30, 1891	3½	3.89
Tenement Dwellings Company, Rouen	Commercial	Dec. 31, 1890	1.3	1.4
Cheap Dwellings Company, Lyons	Semiphilanthropic	Dec. 31, 1891	4	
Workingmen's Dwellings Company, of Passy-Auteuil, Paris.	Semiphilanthropic		*a* 1½ to 2½	
Havre Workingmen's Dwellings Company, Havre.	Commercial	1891	*a* 4	
The Cottage, Lyons	Commercial	Dec. 31, 1891	5	
Rouen Cheap Dwellings Company, Rouen	Commercial	Dec. 31, 1890	3	8
M. Menier, Noisiel	Manufacturing			*a* 1½
Mining Company of Anzin, Anzin	Mining			*a b* 3
Northern Railway, Bourget	Railway			*a b* 2½
M. Fanien, Lillers	Manufacturing			*a* 4
BELGIUM.				
Bureau of Public Relief, Antwerp	Philanthropic			*a* 4½ to 5½
Bureau of Public Relief, Wavre	Philanthropic	1891	4	
Brussels Workingmen's Dwellings Company, Brussels.	Semiphilanthropic	1889	2	
Verviers Workingmen's Dwellings Company, Verviers.	Commercial		4	
GERMANY.				
Tenement Dwellings Company, Frankfort on the Main.	Semiphilanthropic	Dec. 31, 1893	3½	4.24
Berlin Mutual Building Company, Berlin	Semiphilanthropic	Oct. 31, 1893	4	
Meyer's Model Tenement Buildings, Leipsic	Philanthropic	1893		3
Cooperative Building Association, Dresden	Commercial	Mar. 31, 1894	4	4.7
Saint John's Society, Dresden	Semiphilanthropic		3½	*a b* 5.6
Savings and Building Society, Hanover	Commercial	Dec. 31, 1891	4	*a* 4½
Berlin Building Association, Berlin	Commercial		*a* 5	
Barmen Workingmen's Dwellings Company, Barmen.	Commercial	1891	4	*a* 3.65
Cooperative Building Company, München-Gladbach.	Semiphilanthropic	Dec. 31, 1891	4½	*a* 4½

a Average. *b* Gross. *c* Average, without deducting repairs.

DIVIDENDS AND NET PROFITS OF MODEL HOUSING COMPANIES—Concluded.

Company.	Character of company.	Dividends paid.		Per cent of net profit for year.
		Year ending—	Per cent.	
GERMANY—concluded.				
Mutual Building Company, Landsberg on the Warta.	Semiphilanthropic..	July 1, 1892	1	*a* 1½
Marine Service of the German Empire, Friedrichsort.	Government	1891		*b* 2
Mulhouse Workingmen's Dwellings Company, Mulhouse.	Semiphilanthropic..	1888	4	
Friedrich Krupp, Essen	Manufacturing	July 1, 1891		{ 2.1 { 2.58
Villeroy and Boch, Mettlach	Manufacturing	Dec. 31, 1892		*c* 3
Municipal Model Dwellings, Duisburg.....	Municipal	1891		*b c* 4
DENMARK.				
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a Average. *b* Nearly. *c* Gross.

The Presbytery Commission of Glasgow believes that the erection of model dwellings in that city is not as profitable as it used to be. The cost of building, value of land, and burden of taxation have risen out of all proportion to the increase in rents. The price of land may be taken at £1 ($4.87) per yard. The cost for repairs due to carelessness and destructive habits of tenants amounts to from 25 to 30 per cent of the rental, at a low estimate. At the present market value of property a dividend of from 4 to 5 per cent may be realized, on the assumption that full rents are charged and the property is fully let. A large owner of property gave evidence that between 1855 and 1890 the cost of building had increased 50 per cent, and that rents have risen less than 15 per cent. The cost of repairs, owing to the advance in labor, has increased 50 per cent and taxation has increased materially. The sanitary inspector, Mr. Fyfe, was very sanguine, however, that property could be renovated and made to pay well, but he was not so sure that new model property could. The commission takes this view of the case with regard to renovated property, believing that an association could do this, because it could hold contiguous blocks and could manage them more advantageously than persons owning single structures. The tenants would need to be selected from the more worthy among the poor.

There is a higher test of social economic utility than the size of dividends to stockholders. Such utility is disclosed by the well known fact that rentals charged in model dwellings are almost universally lower than those exacted for fairly similar accommodation in the neighborhood. The perusal of the foregoing text will add convincing testimony in support of this statement.

The provision of first-class homes is of great importance. If they can be provided at a lower rate than ordinary, and yet bring a normal commercial return, nothing further can be desired. Where model companies have not succeeded there is generally some good reason for it. There is for them, undoubtedly, in every community a wide sphere of work.

A factor of very great importance in securing favorable economic returns is wise supervision. As in every other enterprise, good management is the most essential thing. Upon it depends, especially, the size of the repair account, which often makes the difference between success and failure. It is especially important, in dealing with the lowest classes who are put in renovated property, that a bonus for prompt payment of rent, sufficiently large to tempt the tenant, should be offered. The experience of the Glasgow Workmen's Dwellings Company and other associations in this regard has been most satisfactory.

Miss Octavia Hill maintains that one great reason why model tenements sometimes do not pay is that they are built too expensively. She says that they ought to be constructed with the greatest possible simplicity, and only that which is really wanted for health should be supplied. She instances particularly the carrying of water to separate lodgings and putting drains all over the place. She says rooms should always be built with a separate approach, so that they may be let either en suite or singly. These suggestions are made because cheaper buildings mean lower rent.

By making the outside of the house as well as the interior plain and simple, there will be little temptation for tenants of the better class to come into them. This is very important, and should especially be considered by agencies who aim to minister to the needs of the poorest. If houses contain too many attractions, particularly too many conveniences, with the further attraction of low rentals, those who are parsimonious among the more well-to-do workers will unfailingly come. Furthermore, as the class of tenants for which such property is designed is not particularly careful of house fixtures, it is a great deal better to give fewer accessories or conveniences, and hence lower the repair account. These houses are meant not to give the best accommodation, but to be utilized as stepping stones to enable people to escape from degraded surroundings and to help them on the way to higher and healthier existences.

Georges Picot very aptly remarks, "The improvement of dwellings is the best guarantee of civilization." It is undoubtedly true that there has been an improvement in the housing of working people during the

last quarter of a century, but, on the whole, it may be questioned whether this has been commensurate with improvements in other phases of social condition.

An exceedingly unfavorable ethical element in existing methods of living is the habitation of single rooms. Very frequently persons other than members of the family are accommodated. Lord Shaftesbury remarks that the effect of the one-room system is, physically and morally, beyond all description. It generally leads to the one-bed system, where the herding of sexes is totally destructive of all benefits derived from education. Statistics showing the proportion of single-room dwellings in certain cities have been given elsewhere. They represent far too large a quota of the whole. In German cities, where rents are relatively high, the poorer classes often find difficulty in securing dwellings cheap enough for their small incomes, and are therefore in the habit of subletting their rooms to night lodgers. In Berlin a law exists forbidding mixing of sexes in the same bedrooms, but it is only enforced in extreme cases, partly on account of the difficulty and partly because of the sympathy of the police, who claim that the state of affairs can not be remedied without rendering many people homeless. Inspections are only made on rare occasions and when extreme cases are reported. About 400 instances a year come under police supervision. The Brussels Committee of Patronage reveals a startling record of promiscuity. In the first police division of the city, among 578 workingmen's families, each inhabiting a single room, boys and girls, youths and adults, in 17 cases, slept in the same bed. In the second police division 1,429 families lived each in a single room. In 196 instances the whole family occupied a single bed. In the third police division, out of 401 families each living in a single room where young men and young women slept under the same roof, in 77 instances the whole family occupied the same bed. In the fourth division 462 families lived each in a single room, and in 116 instances the whole family occupied the same bed.

It is an encouraging fact that the higher one goes among the laboring element, the less one finds a desire to use things in common. This is probably the explanation why common baths, laundries, reading and club rooms, etc., do not find particular favor. In catering to this sentiment certain large housing companies building self-contained tenements have performed useful and civilizing work. The lower strata of laborers are much more gregarious.

Lord Shaftesbury interested himself practically for more than sixty years in improving the living environments of wage-earners. He was able to say that he was certain that many people who are in a filthy and deplorable condition have been made so by their own surroundings; while, if the houses were improved, many might remain in their filth, others might be rescued from it. Human nature is imitative, and the force of good example is catching.

Undoubtedly, even the lowest class should be stimulated by offering them the best accommodation that can be remuneratively afforded. Strong willed, intelligent people create or modify environment, while the weaker and unthinking become largely subject to it. This is the correct way of expressing the relation of individuals to environment. The importance of healthy living surroundings can find no stronger principle of sanction than that offered by this great law of human progress.

Drunkenness is sometimes the cause, but is oftener the effect of poor housing. Physical exhaustion, nervous depression, want of nutritious food, etc., stimulate alcoholic indulgence. Saloons are thickest in the worst centers. They would not be found there if they did not receive patronage. In Saint Giles' ward the population is the most dense and the housing the poorest in the whole city of Edinburgh. There were in 1889 in this division 127 licensed premises for the sale of liquor to 234 where food could be obtained. Strangely enough the rental of the latter was but 79.6 per cent as much as for the former, possibly a gauge of relative patronage. Out of 8,139 police offenses in Edinburgh during a single year, 2,690 were committed in Saint Giles' ward. These statistics are exceedingly suggestive. The district contains one-eleventh of the population of the city, yet it furnishes one-third of its total crime. The total number of one-room tenements in the city is 14,393, one-eighth of which are found in this ward. The average density for the whole of Edinburgh is 44.4 per acre. In Saint Giles' ward it is 114.5, notwithstanding that 17½ per cent of its area is taken up with parks. The death rate for this ward was 26.79 per 1,000 during the half year ending June 30, 1888, for the whole city 19.02. During the corresponding period in 1889 the death rate of the city was 16.05 per 1,000, while that of Saint Giles' ward was 22.11. Bad housing is at the bottom of this strikingly unfavorable showing.

Dr. Russell, in a most interesting address before the Philosophical Society of Glasgow, in 1889, took the worst district of Glasgow and analyzed its sanitary and social condition for the purpose of giving an object lesson. This district, No. 14, embraced 35 acres, in which were 1,308 separate dwellings inhabited by 7,150 persons. The district "lies between Stockwell street and Saltmarket on the west and east and Trongate and Clyde on the north and south. The Union Railway occupies the very center. Between the clearances necessary to its formation and the operations of the Improvement Trust, this district has been, so to speak, disemboweled. Still, in those portions which remain, we find a population the like of which, for social and moral degradation, is not to be found in the city. Their houses, though much has been done for them, are radically bad, and total demolition and reconstruction is the only remedy." This district "has the largest proportion of inmates per inhabited room, the largest proportion, save one, of one-apartment houses, the highest death rate over all, the highest

death rate under 5 years, the largest proportion of deaths under 1 year per 1,000 born." Fifty-one per cent of the dwellings in this district are "ticketed," and thus subject to night inspection for prevention of overcrowding.

In this district there were 232 deaths and 218 births during the year 1888. The birth rate per 1,000 was 30.49, while that of the whole city was 34.92. The death rate per 1,000 was 32.45; for the city as a whole, 20.91. The death rate of children under 1 year of age per 1,000 born was 239 for the district and 133 for the city as a whole. In this district 24 per cent of the children born did not survive after one year. In this district 25 per cent of the children born were illegitimate, in the whole city 8 per cent. Of the 232 deaths 18.5 per cent were uncertified, and therefore received no medical care in their last illness, 29.7 per cent died in public institutions, and 51.8 per cent died at home. The public institutions are classified into those supported out of the public rates and those supported by voluntary charity. The deaths in the former represented 25.4 per cent of the whole, and those in the latter 4.3 per cent. This does not take into account the people who were original residents of this district who contracted their sickness or evil tendencies there, but who died in poorhouses. Of those who died in the district 37 per cent were interred at the expense of the ratepayers. This is exclusive of 10 stillborn children interred at the expense of the sanitary department. The cost of interment of all classes to the city as a whole was 9.28 per cent, and the proportion of all the deaths in the city which took place in institutions of all kinds was 15.5 per cent. Of the total number of births in the district 10 per cent were at the cost of charity and the rates, while 45 per cent of the total number of births were attended to by doctors and nurses whose salaries were paid by public institutions. Therefore, at least 55 per cent of the cases of childbirth were attended through the help of charity or the rates, as compared with 25 per cent in the whole city.

If we take the various forms of personal work done by officials within the bounds of this small area, we shall get some conception of the amount of public money expended on it merely in the shape of the time of subordinate officers. We find that there were 231 inspections, visitations, and other consumptions of official time per 100 of population in this district. For the whole city the proportion was 84 per 100 of population. The nuisances discovered amounted to 38 per 100 inhabited tenements in this district. The proportion for the city as a whole was 16. Analysis of rentals for the district, and rates and taxes paid show that the cost of all this public support is not borne by the inhabitants who do the mischief but by the better classes. Of householders, whose house property cost less than £10 ($48.67) per year, 28.5 per cent paid no rates or school tax whatever during the year 1888–89, though by law they are obliged to do so. For police rates 20.46 per cent of the same class paid nothing. Dr. Russell maintains that the number of house-

holders in Glasgow who put nothing into the public purse while they take freely out of it is about 24,000. He arrives at this conclusion from an entirely distinct set of facts:

1. Occupiers under £10 ($48.67) rental annually who fail to pay the police rates, 24,012.

2. The number of "ticketed houses," 23,288.

3. The householders under £10 ($48.67) rental annually reported as having failed to pay the poor rate, 24,627.

He maintains that this is evidence to show that they were dealing with the same persons throughout. Estimating each household to contain 3½ persons, 84,000 people put nothing into the public purse of Glasgow annually, but took freely from it.

In this district there are 43 public houses with an annual rental of £5,167 2s. ($25,145.69). There are 104 premises where food supply is obtained, such as groceries, confectioneries, restaurants, bakeries, dairies, butcher shops, etc., whose total annual rental is £4,944 12s. ($24,062.90).

Bad housing is a terribly expensive thing to any community. Moreover, it explains much that is mysterious in relation to drunkenness, poverty, crime, and all forms of social decline.

CHAPTER XIII.

CONCLUSIONS.

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It will be obvious to a careful reader of the preceding pages that differentiation of the great mass included under the somewhat indefinite term of working people is a necessary preliminary to the statement of conclusions. In the first place there is the artisan element. Members of this class are in receipt of fair wages. As a rule, they are steady, thrifty, and socially ambitious. They are good tenants, and persons who make house ownership their business are very glad to have them. They can pay sufficient rent for good houses, and for them builders, whether private individuals or model companies, as a matter of fact can and usually do make satisfactory provision. Sanitary law and wise building regulations, which are meant for the protection of all alike, are the only things this section needs. Private or model enterprise may, and often does, secure a good return upon capital in letting accommodation to married artisans. Single members of this class have no difficulty in securing good boarding houses. There seems, therefore, absolutely no excuse why workingmen in receipt of fair wages should not be everywhere provided with good homes. It is largely the fault of public authorities if they are not.

The next step in the gradation is occupied by individuals who have not mounted quite so high in the social scale. One section has been unfortunate, and through sickness or other misfortune has grown deeply in debt or become discouraged in the effort to maintain a fair standard of existence. The other includes those prone to be lazy and careless, and those who are not particularly intelligent or ambitious or are possessed of bad habits. Both sections are somewhat irregular as rent payers, the latter figuring especially as rent jumpers. They are not desirable tenants, and usually they have difficulty in finding fair accommodation. The first section of this class is generally that which model enterprises of a philanthropic or semiphilanthropic character have attempted to deal with, though the greater number of model agencies have designedly left them out. Sir Sydney Waterlow, in dividing working people into three degrees, the upper, middle, and lower, states his belief that it would not have been right to build down to the lowest class, because in so doing his company would have been obliged to construct a class of tenements which, it is to be hoped, no

one at the end of a few years would be satisfied with. Therefore his policy is to build for the best class, and by lifting them up to leave more room for the second and third below them. One need not suggest an objection which very naturally arises, namely, that as the price of land is such an element in commercial success the higher class would have all the advantage because, naturally, the most available and cheapest land would first be selected. When after the lapse of half a century, for example, supposing there were no other than model enterprises, the first section having been fully provided for, it would be exceedingly difficult to help the second and third. Cheap land would probably only be found at great distances from places of employment.

Lord Shaftesbury, in his evidence before the royal commission on the housing of the working classes, corroborated the opinion expressed by a great many other witnesses, namely, that model dwellings have not largely reached the class whose needs are greatest.

Now, this large body referred to is placed on an inclined plane, so to speak, their circumstances, characteristics, and environments giving them a downward trend. They need looking after, and they are the class with which lady rent collectors should establish reciprocal relations of business and sympathetic interest. These people should also come within the purview of philanthropic effort, and should find shelter in houses erected by large philanthropic gifts or bequests and by organizations of individuals who agree to limit dividends to a low figure. Providing for this class, too, on a commercial basis is not without the range of possibility, as has been demonstrated in Glasgow and Edinburgh, among other places. The way in which it has been done has been to purchase old and dilapidated property which had been closed or which ran great risk of being closed for sanitary reasons, renovating it thoroughly, and placing it under the control of lady rent collectors with wise heads and sympathetic hearts. The Edinburgh Social Union has demonstrated that this division of society may be acceptably housed on commercial principles in the manner outlined. Of course, one can not expect a great extension of effort if philanthropy alone is to be depended upon. In Glasgow, for example, the 90,000 dwellings inhabited largely by casual workers, the poor and the criminal classes, have a value of more than £8,000,000 ($38,932,000). The demonstration that commercial success may attend renovation is as fortunate as it is timely.

The third section includes the incorrigible, the drunkard, the criminal, the immoral, the lazy, and the shiftless. These do not pay rent if they can avoid it. They ruin any property in which they take shelter, and can consequently only get the lowest sort of accommodation. They hate discipline, and, as Lord Shaftesbury significantly remarks, they have hardly any domestic or civilized feelings. Further, says he, "I believe that nothing has led more to misery of every sort, moral and physical, than burying those people in holes where nobody saw them,

and they saw nobody, except those who lived immediately around them." There must be an entire change of policy on the part of governing bodies toward this class. Lord Provost Russell of Edinburgh goes so far as to say that they should be driven from their hiding places into municipal lodging houses, where they could be under police control, the sexes separated, and the children placed in institutions where they might grow up useful members of society. The concurrence of these distinguished authorities, both of whom have experienced a lifelong interest in the housing of the poor, and have had, therefore, every opportunity for mature judgment, would seem to furnish weighty reasons for reform in the current treatment of the lowest social strata. To the possible cry against breaking up the family it is only necessary to answer that the bulk of such people are unmarried, that they have not even a moderate standard of domestic life, and that to them the word "home" has no proper meaning. The only prospect of reducing the number of the submerged is to strike at the root of the matter by removing the children from environments where there is everything to drag down and nothing to uplift. Happily, the increasing strictness of sanitary enforcement is driving this class more and more into lodging houses.

With the disappearance of existing slum property and the precautions that boards of health are taking to prevent new slums from springing up, coupled with the repugnance of landlords owning decent property to receive such tenants, the areas in which they can find shelter are more and more restricted. Discipline, regularity, and insistence upon prompt daily payment for accommodation given, can not fail to have a reforming influence upon individual habits.

The duty of every community to provide itself with an efficient sanitary code and to see that the same is enforced is apparent enough; neither is there any excuse for failing to make stringent building regulations so that the future may be guaranteed. The great benefits of sanitary reform have been outlined in Chapter IV, and the wisdom of having alert organizations to uphold and assist the authorities is amply justified in the succeeding chapter. It has been suggested that property holders should be called upon to produce upon demand a sanitary certificate. Houses being, in one sense, commodities, this method of treatment would simply put the owners of bad property in the same light before the law as the venders of decayed fruits or vegetables.

It is scarcely an excuse to say that a tenant is willing to take risks. He may be ignorant, or he may be apathetic and careless about hygienic surroundings for himself and family. The community has a right to protect itself so that such people may not become public charges through sickness. But it is not the landlord alone after whom it is necessary to look. Tenants should be coerced into keeping themselves and their surroundings reasonably clean, as is done

in Berlin, where, after warning, unusually slovenly families are turned out of their dwellings and subjected during a certain period to the special surveillance of the police. In this way the upgrowth of slums is prevented. Tenants generally feel that when they pay their rent their dwellings belong to them, and that if they wish to sublet any part thereof that is their affair. This custom ought to be regulated and the practice of overcrowding repressed with a strong hand. The slum must go. Not only is it a menace to public health, but it is a moral fester wherein character is being continually debauched and the evils which afflict civilization recruited. English laws and practice, which have been thoroughly outlined in Chapter II, furnish, if not the best, at least a practicable, means for eradicating slums from the modern city. The process is always costly, especially when awakenings come late; but then it must be understood that nothing is so expensive as disease and moral decline.

There is another feature of this problem which stands clearly outlined. Investigation shows indubitably that the percentage of earnings of heads of tenant families which is absorbed in payment of rent in all large cities is far too high. It is no wonder that overcrowding within the dwelling as well as overcrowding on space becomes an almost universal practice. The price of land can not be artificially lowered nor can wages be advanced by public decree. For governing bodies to assume the task of housing so large a quota of the population as would be represented, without any commercial return, might operate indirectly to enhance wages, but, like other artificial stimuli, would very soon lose its good effects.

Scanty wages are a powerful element in human misery. Weak characters are apt to become despondent and allow themselves to drift with the tide, and end too often in a state of chronic wretchedness. Those whose earnings are not only scanty but fitful have a supreme necessity to live near the localities where labor may be obtained. This means that they must be housed where land is valuable, and for that reason where it is hard to build new houses and make them pay. Here is, indeed, the crux of the problem. Does the present inquiry furnish any suggestion for its solution? A hint has already been offered from the commercially successful experience of agencies in Edinburgh and Glasgow, cities certainly where the average earnings of unskilled labor are much lower than they are in any American center of like population. Old property was bought which either had been closed as unfit for human habitation and its value thus artificially depressed, or which was in a dilapidated condition and yielded insignificant returns. Such properties were remodeled, filled with the class of laborers referred to, and placed under the administration of lady rent collectors. Efforts of this kind, however, are limited by the public spirit, philanthropic sentiment, and courage existing in a given community. Probably not a tithe of the necessary effort can be organized.

A way, however, seems to be opening up wherein the elements just mentioned do not largely enter. For the workingman's purposes space is measured by time not by distance. Underground and overhead electric transportation means the lessening of distances, and brings a large range of territory within living areas which hitherto has been outside possible consideration. The effect of rapid transit ought normally to be that artisans, or the higher earning portion of working people, will more and more house themselves in the suburbs of cities, where they may purchase homes upon reasonable conditions. Widening habitable areas to workingmen in cities would not only relieve congestion of population, but it must in time reduce the demand for houses in those spots where massing most frequently occurs, consequently reducing rents so that those with lower earnings might then find fair accommodation at reasonable rates. The cheapening of property in these neighborhoods would enlarge the action of that form of philanthropy which organizes itself into agencies for purchasing and reconstructing old tenements, putting ladies in charge, and contenting itself with a normal commercial return. The artificial enhancement of rents, due most largely to these necessities of the poorer laborers, is already operating to relieve congestion in certain parts of New York city. Clothing manufacturers and others conducting house industries are sending their goods to the country districts to have them made. The workmen are going with the goods.

Increasing sanitary stringency, encouragement afforded by savings banks, life insurance, and other institutions in lending money at low rates, the spread of knowledge and awakening of public interest through such agencies as the French society for promoting cheap dwellings, and the support of model effort are indications pregnant with hope and possibility.

The problem of the housing of working people includes sanitary, economic, and ethical issues of the highest importance, but a final solution can only be wrought out along economic lines. The general teaching of the present inquiry, as regards model housing enterprises, affords in most respects a certainty, and in others more than a reasonable probability, that this can be done in the future, as the figures quoted in the previous chapter show that it has been done in the past.

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